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SUPPLEMENT

Journal of the Indian Medical Association

VOL. XXI, No. 5 CALCUTTA FEBRUARY, 1952

THE THIRD ASSAM PROVINCIAL MEDICAL CONFERENCE

The third Assam Provincial Medical Conference was held with Dr. B. Baruah as president, on the 15th, 16th and 17th October 1951, under the auspices of the Assam Provincial Branch of the Indian Medical Association, at Gauhati in the Sudmersen Hall.

The conference was preceded by a meeting of the All-India Working Committee of the I.M.A. on the 14th and 15th October, '51.

Dr. T. N. Banerjee, the President of the Indian Medical Association inaugurated the conference. The different scientific sections were presided over by Dr. Chamanlal Mehta of Bombay (Gynæcological), Dr. M. N. De of Calcutta (Medical), Dr. G. D. Kapur, Principal Assam Medical College, (Surgical) and Dr. S. N. Dutta, D.P.H., Assam (Public Health and Nutrition). An exhibition of Public Health and Medical Science was also held. This was opened by Dr. H. K. Das.

The Chairman of the Reception Committee, Dr. J. C. Das accorded welcome to the guests and in course of his speech invited attention of the conference to the outstanding problems of the country such as the medical need of the rural areas, re-organisation of the hospitals, training and supply of nurses, the problem of maternity and child welfare and the food and milk problem of the country.

Dr. T. N. Banerjea in his inaugural address referred to the resolution of the Health Ministers in their last conference to put the indigenous system of medicine on a scientific basis. He also spoke on the medical need in rural areas and the Nursing Services.

Dr. Chamanlal M. Mehta of Bombay, Dr. S. C. Sen of Delhi and Dr. A. C. Ukil and A. D. Mukharji spoke during the inaugural and open sessions of the Conference and impressed on the members of the medical profession the utility of joining the Association.

The President, in course of his address said the following:

In 1947 we have taken charge of our country with the legacy of more than 200 years of British rule. We have taken over charge of 35 crores of people of whom 95 per cent are illiterate and about 90 per cent scattered over about 7 lacs of villages. To make this population health-conscious is a tremendous task. But I am an optimist all through my life and I am sure the spirit, sincerity and tenacity with which the Father of the Nation infused us to make this very element politically conscious to overthrow foreign rule, will still prevail on us to make the same element health-conscious, a pre-requisite and a fundamental condition for any health scheme to be successful.

Next to health-consciousness comes the nutrition of the people. The food problem of the country requires serious consideration of the Government and the people. Our country is not producing food in proportion to its requirement, and the food situation of the state of Assam during the year under review has become a serious problem. In this great danger of shortage of cereals the medical men can play a great role by advising the people how to maintain health by a change of food habit, taking more of fruits and vegetables and less of cereals.

DR. B. BARUAH,
PRESIDENT OF THE ASSAM PROVINCIAL MEDICAL CONFERENCE.

The Government of Assam have taken up a grow-more-food scheme with seven point integrated programme namely, (1) irrigation, (2) compost, bone-meal and oilcake manuring, (3) seed multiplication and distribution, (4) plant protection, (5) utilisation of waste land with mechanical cultivation, (6) double cropping, (7) better cultural practices like sowing, weeding etc. The programme however leaves out of account the most important factor that finally influences increased food production namely improvement in the condition of the pusher, the man that pushes the plough and the puller, the pair of bullocks that pulls the plough.

There are two departments of the Government of Assam: Medical and Public Health under the Medical Minister assisted by two departmental heads, the Inspector-General of Civil Hospitals and the Director of Public Health, each working independently. Actual medical help is given through the agency of the hospitals and dispensaries of both the depart-

ments. The yearly expenditure of the Medical Department is about 20 lacs and of the Public Health Department is about 18 lacs. The hospitals of the Medical Department are generally at the district and sub-divisional headquarters and the dispensaries are in the rural areas. The total number of hospitals and dispensaries is 340. The strength of the medical personnel engaged is 398; of these 236 are engaged in rural areas and the rest 162 in urban areas. The total number of Public Health dispensaries is 76; Kala-azar hospitals 2 with 122 beds. There are 144 doctors and 90 Health Inspectors. From the above arrangements it is clear that the health of the population especially of the rural part is not receiving proper attention of the Government.

The arrangements to look after the tea-garden labour population which is about 10 lacs that is; one tenth of the total population are also not adequate and satisfactory. There are 700 hospitals with beds and 200 dispensaries without hospitals arrangement. The total number of beds is 12,000. The total number registered medical men is 464 and unregistered 250 working under 41 Chief Medical Officers mostly Europeans. Common diseases among the population are, malaria, ankylostomiasis, helminthic diseases, kala-azar, nutritional anæmias, splenic anæmias, dysenteries, typhoid, tuberculosis etc.

From the above arrangements it appears that the health of the people is not receiving proper attention from the Government of the state. It is due mainly to dearth of medical personnel. So it will not be out of place to mention briefly the slow evolution of medical education in the state that led to such a shortage of medical men.

The evolution of the medical education of the state gives an interesting history. The first step on the part of the Government to provide medical education was taken in 1892 when certain scholarships were given to students of the Brahmaputra Valley and Khasia Jaintia Hills for study at the Dacca Medical School. A clause in the Assam Labour and Emigration Act I of 1882 also provided that every tea estate with more than 50 labourers on its pay-roll should entertain a medical officer. Due to acute shortage of doctors a system was introduced by which Medical Boards of Examination were constituted in different districts to supervise the training of apprentices under a bond to serve for three years in a Government or tea-garden hospital. Each of such Boards was formed by the Civil Surgeon of the district and another medical practitioner. These apprentices, after they had passed the necessary examination, were granted a certificate which authorised them to hold medical charge of the tea-garden under the supervision of a fully qualified doctor. This is in short origin of "Board passed doctors" to serve the tea-gardens of Assam as well as the people of Assam.

In the year 1900 Berrywhite Medical School was established at Dibrugarh. This marks the beginning of the next step of medical education in the province. As regards medical education of the university standard, only 2 or 3 seats were reserved yearly at the Calcutta Medical College attended with scholarships (Rs. 35 for many years, then increased to Rs. 60) per month.

After the conference on medical school education held in Delhi on the 7th and 8th of November, 1938, the Government of Assam appointed a Committee on Medical Education in Assam. The Committee unanimously passed resolution recommending that one uniform minimum standard of training and qualification for practitioners of modern scientific medicine should be established throughout India at an early date and this standard should be such as shall satisfy the requirements laid down by the Medical Council of India.

The mover of the resolution also recommended that the policy of the Government of Assam should be to implement the resolution. I am glad to mention that our present Cabinet with the late Lokapriya Gopinath Bardoloi as Premier took immediate steps to convert the Berrywhite Medical School to Medical College. Accordingly a committee was appointed with Dr. B. C. Roy, the present Chief Minister of Bengal as Chairman to select a site for the College. The Committee unanimously approved of the present site. The present Assam Medical College was opened by Lokapriya Bardoloi at Barbari (Dibrugarh) on the 3rd November, 1947.

This is in short the history of the evolution of medical education of the state.

Vital Statistics

This is the foundation of all planned health schemes as ultimately all preventive and curative works must be organised on the accurate knowledge. In the state of Assam this important work is left in charge of an illiterate village headman. So the vital statistics of rural areas are inaccurate and unreliable. The Government should change this system and place the subject in charge of the rural health assistants of the Public Health Department.

Tuberculosis

The state of Assam is undergoing a great experiment with B.C.G. vaccine to combat T.B. 3 lacs and 38 thousand persons are already vaccinated with this year. The measures taken against this growing menance are absolutely inadequate.

Maternity and Child Welfare

Infant mortality 130·5 per 1,000 births against the national average of 160. Almost 50 per cent of the deaths occur during the first month of life. So the infant mortality rate of the state is very high. Maternal mortality rate is also very high; no proper statistics are available in Government reports.

Nursing Organisation

The condition of nursing in the hospitals of Assam remains the weakest spot in the medical administration. A scheme recently taken up by the state Government for the re-organisation of nursing service opens prospects for improvement.

Leprosy

There are about 12 leper colonies; the majority of them are in hill areas—where 5,487 lepers are treated.

Cancer in the State of Assam

It requires a special attention of the state. It is increasing in Assam. The newly established department of E.N.T. of the Assam Medical College is crowded with cancer cases, especially of throat cancer. Assam provides a virgin soil for research workers on this fatal disease.

Condition of the Services

Special rules are in existence, applicable to Public Health personnel by which 3 years services are not counted towards their pension. In no other services of the state such unreasonable rules are applied. Pay and prospects in the Public Health Department should be immediately revised and made attractive to persuade competent people to join the service.

ANKYLOSTOMIASIS

In the state of Assam about 70 per cent of the rural and tea-garden population which form about 90 per cent of the population of the state are suffering from ankylostoma. So in my opinion this should be the disease to be tackled first. Ankylostomiasis has attracted the attention of the World Health Organisation. I am sure, with the co-operation of this great organisation we will be able to implement the scheme if earnestly taken up by the Government.

In conclusion, I invite all medical men of the State to join this great and growing national Institution and organise themselves into a compact and powerful body capable of shouldering the responsibility of making young India healthy and prosperous.

• • • • •

The following resolutions were passed at the Conference.

1. The 3rd Assam Provincial Medical Conference records its deep sense of sorrow at the very sad news of the brutal assasination of Mr. Liaquat Ali Khan, the Prime Minister of Pakistan and conveys its sincere condolence to the members of the bereaved family and to the Government and people of Pakistan.

2. The 3rd Assam Provincial Medical Conference records its deep sense of sorrow at the sad death of Dr. S. C. Chakravorty, Dr. Daliluddin Ahmed, Dr. Atta Uddin Ahmed, Dr. D. N. Nath and conveys its heartfelt condolence to the members of the bereaved families.

3. This conference reiterates resolution No. 9 of the 2nd Assam Provincial Medical Conference and urges upon the State Government to take immediate steps to unify the Medical Services as has been done by the Madras Government.

4. This conference recommends to the State Government to establish immediately Rural Health Units for every 30 thousand population under the direct control of the State Government or Village Panchayats wherever these function consisting of the following:

Personnel—	Medical Officer	...	... 1.
	Midwife	...	... 1.
	Health Assistant	...	... 2.

Equipment—Cottage Hospital of 6 beds.
Necessary laboratory and hospital equipment.

5. This conference notes with alarm the continued deterioration of the Health of the People of this Province due specially to adulteration of food and requests the Government to take more vigorous steps to remedy this state of affairs, as measures hitherto taken by the Government have not produced any tangible results.

6. Resolved that Government be requested to stop issuing Drug Licence to other than those who maintain registered pharmacists under them. The licence to be issued only on recommendation of the Head of the Medical Department of the District. This conference also requests the Government to review the existing licences.

7. Resolved that the Government be requested to abolish levy of sale tax on medicines, surgical appliances and equipment and invalid foods to give relief to the suffering humanity in such hard days.

8. The members of the Assam Branch of the I.M.A. at its 3rd Annual Conference views with regret and great disappointment, the inadequate scale of salary recommended by the Assam Pay Committee to the Medical Officer of the Public Health Department. The conference resolves unanimously to request the Government to upgrade their scale of salary as recommended by the deputation of the Public Health Department which awaited on the Hon'ble Chief Minister and other Ministers concerned.

9. Resolved that this association views with grave concern the increasing number of unqualified medical men some of whom have not even worked in any medical institution practising in the State of Assam particularly in the Rural areas and thereby threatening the lives of innocent villagers. This conference moves the Government for taking immediate steps to prevent such people from carrying on quack practice.

10. This conference requests the Assam Medical Council to reconsider the cases of certain medical practitioners who have passed from certain private medical institutions of Bengal regarding their registration under the Assam Medical Council, as because they could not apply for registration to the West Bengal Medical Council within the specified time mentioned in the West Bengal Gezette, so as to be eligible for registration under the Assam Medical Council, whereas others of equal qualifications who applied in due time have duly registered their names under the West Bengal as well as Assam Medical Council.

11. Be it resolved that the Pay and Rank of an S.D.M.O.H. be that of a Gezetted Officer.

12. In consideration of the demand of lady doctor by the Public be it resolved that the Government be moved to provide a lady doctor and one Health Visitor in every Subdivision headquarters.

13. This conference resolves that the authority be requested to promote efficient A.M.O.'s of tea estates to the rank of medical officer.

14. This conference appreciates the works done by the Assam Medical Relief Committee and accords approval of the same committee to function till the rules and regulations for the same are framed by the Sub-Committee formed with the following members. The Sub-Committee is to submit the rules and regulations to the Working Committee for its approval within 2 months.

THE 21ST PUNJAB STATE MEDICAL CONFERENCE

The 21st Punjab State Medical Conference was held at Jullundur on the 17th and 18th November, 1951 in the premises of Sain Dass Anglo Sanskrit High School, under the presidentship of Dr. Fakir Chand Shori of Amritsar.

After the welcome address was read by Dr. Bhagwan Dass Sood the Chairman of the Reception Committee, Mr. A. L. Fletcher, the Commissioner, Jullundur Division inaugurated the conference. Dr. Fakir Chand Shori next read his presidential address. An exhibition was held which was opened by Col. Adrish, Assistant Director, Health Services. An interesting Scientific programme was also arranged and the following papers were read.

1. Thoracic Surgery by Dr. Yudh Veer.
2. Pleural effusion by Dr. S. K. Sen Gupta and Dr. B. R. Nayyar.
3. Osteomyelitis by Dr. Karam Singh.

4. Emergencies in Genito-Urinary Surgery by Dr. Stuart Bergema.
5. Thrombophlebitis and Vitamin E by Dr. B. L. Kapur.
6. Psycho-Surgery by Dr. Randhir Singh Segat.

On the 2nd day of the conference the annual report was presented by Dr. Munshi Singh and new office bearers were elected with Dr. Sain Dass Vohra of Amritsar as Secretary. Five Asst. Secretaries were elected and Dr. Radha Krishan Malhotra was made the Treasurer.

Dr. Fakir Chand Shori,
President of the Punjab State Medical Conference.

Dr. Fakir Chand Shori, in his presidential address referred to the deplorable and in some cases, a scandalous state of municipal and public sanitation. Regarding rural medical relief he said "It is in a far worse condition than relief available in urban areas. The policy of the government in regard to the employment of medical men on a wretched scale of salaries has been tried and it has failed. The conditions of service and the rates of emoluments will have to be liberally revised if they are to succeed in attracting good medical personnel to the countryside.

He also wanted to draw the pointed attention of the government and the public to the health of children in schools.

He also suggested that "the school authorities should take the medical department of school far more seriously than many of them seem to do to-day and put it on a sound and scientific basis. The medical officers who are appointed to look after the health of school children should be well-paid whole time incumbents who have specialised in Pediatrics and who are interested in the work they undertake to perform and their work should be subjected to supervision by state-appointed specialists officers."

Pleading for better medical education in our country, he said, "I am sure that the policy of the Government announced from time to time with regard to the stoppage of the Licentiate course and the upgrading of all junior educational institutions will be carried out according to plan and that before long such schools will cease to be. But it is also essential that the medical colleges of which we do not have very many, should become better places than they are. I fear that some of our colleges are not adequately equipped and properly staffed. And few of them have taken part in medical research. Indeed in the whole of our country there are very few medical men and women who have put themselves and their work within the boards of standard world medical literature. In all reputable institutions of the West a professor can keep his appointment only so long as he is a progressive force in the speciality. The same tradition should be evolved in our colleges. A professor should not hold a tenure longer than 5 years at a time; if he fails to gain recognition as an active worker in his field, he must go and make room for a better man. If he makes good he should be given every facility to continue in his appointment. It is clear that research is possible only when our medical colleges have the right type of teaching staff and when temptation to devote all their times to private practice is removed.

If our medical associations and conferences go on stressing this aspect of medical education, it is not unlikely that they will succeed in giving a new orientation to the quality of work in our medical colleges. In brief, a uniform standard system of education all over the country supported by substantial research should be the end to aim at, in our institutions.

I want to say a few words with regard to our branch activities also. I have noticed some press criticism of them. For instance, it has been said that branches of the I.M.A. take little interest in the health problems of their respective towns and that they seem to exist merely for decorating some persons with certain offices. I am afraid such criticism is mostly based on ignorance. I know we are not as effective as we could be but we are not so useless either. A good many of the branch Associations display lively interest in civic sanitation and problems of hygiene and a few of them, like those at Moga and Ferozepur, have occasionally organised "sanitation" and other weeks to stimulate the areas in which they work into greater and better health consciousness, I request the branches which have not yet adopted any such vigorous programme to go in for it.

We have a number of grievances to which I want to give authoritative utterance from this platform. In the first place, I want to protest against the Government not according to the Indian Medical Association that amount and quality of recognition which are its due. As I have pointed out above, the I.M.A. is the premier organisation of the medical profession in this country. It represents India in the World Medical Association. Therefore, it has a status which entitles it to a close if not direct association with the World Health Organisation. But this has been denied to us. I hope the Government of India will recognise the validity of our claim and open before us an avenue not only to justify our existence but also to co-relate the work of the D.H.O. to the lives of the masses. Governments in the States also owe us a similar deal. We should, in all fairness, be unofficial advisers to them in every health matter. We claim a right to be consulted in the framing of Government's health policies.

I must next claim a fair deal for the medical profession in respect of the institution of a common register for the whole of it, irrespective of the degree or diploma that one holds. While the distinction between the lower and the higher qualifications will not and cannot be denied by any resonable person, we should not allow this distinction to prevent the coming into being a common register in which

every qualified doctor finds place by virtue of his belonging to the profession. A protest is also due against the decision of the Election Commission to exclude our Licentiate brethren from the list of voters for the Graduates Constituency for the Upper Chamber of legislatures in some States. I hope that the I.M.A. will take up this question with the Central Election Commissioner. It should also agitate for seats being reserved for it in the Upper Houses, as has been done for teachers and graduates.

My address to you will be incomplete without reference to a grievance of our young men who come out of the education institutions after successfully completing their period of studies. While they are eligible for a career in the armed forces of the country, the conditions of the grant of short service commissions are such as provide little incentive to them. Naturally every one looks for stability and permanence in a career. But as has been proved by selections already made, persons with ordinary qualifications from abroad are often preferred to those who have taken the highest degrees in India. This is a question which requires to be taken up by the I.M.A. with the Army Headquarters.

* * * * *

The following resolutions were passed at the conference.

1. Resolved that the I.M.A. views with great concern the letter of the Punjab Government asking the municipalities to levy a tax of 3 pies per rupee on the allopathic drugs and which are life saving for the patients and urges upon the Government to cancel the said order.

2. Resolved that the Government be requested that the drugs under schedule H be allowed only to be used by personal qualified in the modern scientific system of medicine and further requests that the provisions of the Drug Act be rigidly enforced, and the act be so amended to make it possible to have a proper check of the stocy of drugs.

As the Hakims and Vaids all over the state have also now been registered or enlisted, this conference is of the opinion that to uproot quackery from this state (Punjab, Pepsu and Himachal Pradesh) it is necessary that state should enact law to prohibit any person except the registered ones to practice any system of medicine.

4. While reiterating Resolution No. 4 adopted at the last annual conference, this conference views with grave concern the indifference shown by the Government in not bringing medical graduates and licentiates on one register for the purpose of election to the Punjab Medical Council. This callousness on the part of the Government is responsible for the continuance of the existing rift among the members of the profession. In free India, no such distinction should exist among the members of one profession.

5. This conference strongly resents the exclusion of medical licentiates from the list of coters in the graduate constituency for elections to the Upper Chamber of Legislature in the Punjab although the other states have included them in the list of voters of their graduate constituency as instructed by the Central Election Commission.

6. Keeping in view the need for more medical teaching institutions, it urges upon the P.E.P.S.U. Government to mature this scheme of starting medical College in Patiala at an early date as it was announced by their Chief Minister S. Gian Singh Rarewala. P.E.P.S.U. at the inauguration of annual conference in 1949.

7. The present arrangement for health examination of school children is very unsatisfactory and the examinations are cursory. This conference is of the opinion that to achieve the objective of improving the health of the children, more medical officers should be appointed. On adequate remuneration so that every child may be thoroughly and adequately examined. The conference further recommends that adequate arrangements be made for dental, ophthalmic, E.N. & T. examinations.

8. With a view to unculcate the spirit of sportsmanship among the young generations, htis conference urges on the school authorities, Government and public to make adequate arrangements for play grounds.

9. Resolved that invalided I.A.M.C. officers (Ex. I.M.D.I.G.) like all other officers and other ranks in the army be considered for grant of service and desirability element of pensions on the same rank, basis, the former depending upon the total number of years of qualifying service as E.C.O. and the latter upon the degree of disability when attributed to field or military service.

10a. Ex-I.A.M.C. doctors employed in the railway have not so far been given benefit of WAR service being counted DOUBLE towards their pay and promotions as done in Civil Services long ago.

10b. Neither has this recommendations made by the Selection Board for promotion of Ex-I.A.M.C.S. railway doctors held on 27th May, 1947 at NWR headquarters, Lahore have so far been implemented. Resolved that the railway authorities be stressed to do justice to ex-service railway doctors.

11. Resolved that with a view of fulfilling the need of the country with doctors The Arya Medical School be upgraded as suggested by Bhore Committee.

12. Resolved that seats for condensed course in Medical College, Amritsar be increased to twenty and with a view to creating more seats for the condensed course the state hospital at Jodhpore (Rajistan) be utilised for this purpose because of it's being well equipped.

13. Resolved that the Central Office of the I.M.A. be requested to take up the question of A.M.C. Cadre with a view to improve the conditions of the service specially those present temporary and short service incumbants of the Cadre and to force the Government to do away with the temporary wing and to see that the Medical Graduates of the foreign universities are not given preference over thcs possessing Indian qualifications while granting permanent commissions in the army.

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ASSAM PROVINCIAL BRANCH—The 2nd annual report of the Assam provincial branch for 1950-51 shows that during the year, the local branches increased from 7 to 14 and members increased from 132 to 250.

The most notable work done by the branch is the organisation of the Medical Relief Committee whose services were highly appreciated by the Government and the public.

The second annual meeting of the council was held on the 14th October, '51 at Gauhati, with Dr. H. C. Burua in chair.

After the usual programme was over, new office bearers for 1951-52 were elected. Dr. B. Baruah was elected the president, Dr. N. K. Sarmah, the Secretary, and Dr. A. Borthakur, the Joint Secretary.

An ordinary meeting of the branch was held on the 19th August '51 with Dr. B. N. Roy in the chair.

Dr. B. Mukherjee gave a lecture on "Congenital cystic diseases of the lungs."

An ordinary meeting of the branch was held on the 29th September '51 with Dr. D. Banerjee in the chair.

Dr. D. Banerje e gave a lecture on "Management of Typhoid Fever."

BANARAS BRANCH—The annual general meeting of the branch was held on the 21st October, '51 and office-bearers for 1951-52 were elected. Dr. S. N. Mukherji was elected the president and Dr. S. P. Srivastava and Dr. Ganga Singh, the secretaries.

BHAGALPUR BRANCH—The annual meeting of the branch was held on the 19th November 1951.' Office-bearers for the year 1951-52 were elected with Dr. A. G. Ghose as president and Dr. Subodh Mitra as secretary.

BELLARY BRANCH—From the annual report of the branch it is found that an all round progress was made in the activities of the association. The new committee for 1951-52 was formed with Lt.-Col. R. K. Chethur as president and Dr. U. K. L. Narayana Rao as secretary.

BHOWALI BRANCH—Annual report of the branch for the year 1950-51 shows that 11 members were on the roll. This branch is a new one. It started on the 8th October, '50.

The first general meeting of the branch was held on the 1st December, 1951 with Dr. Khazan Chand in the chair.

Dr. U. N. Mehrotra read a paper on "Cystic Disease of the Lung."

CHAIBASA BRANCH—A meeting of the branch was held on the 2nd November, 1951 at Chakradharpur. Ten members were present. Six new members were enrolled in the meeting.

A scientific paper was read by Dr. S. P. Mukherjee on Anæmia. Dr. P. C. Sen read a paper on Headache.

CONFERENCE OF SOME BRANCHES OF I.M.A. IN SOUTH INDIA—A joint conference of Chettinad, Coimbatore, Mathurai, Ramnad, Tiruchirapalli, Tiruneveli branches under Travancore Cochin Provincial Branch was held at Sethu Castle, Courtallam on the 27th and 28th July, 1951. 120 members were present. Dr. K. Vasudeva Rao, Director of Medical Services, Madras State opened the conference. Dr. K. Rama Ayyar welcomed the members. At the meeting of the Scientific Section Major P. Govinda Rao spoke on "Recent Advances in Urology"; Dr. R. Kesavan Nair, on "Adenoma of the Thyroid"; Dr. B. Rama Murthi on "Intranal Lesions in General Practice."

FAIZABAD BRANCH—The annual report of the scientific section of the branch for the year 1950-51, shows that 11 meetings were held and 6 papers were read during the session, *viz.*, (1) Rheumatism by Dr. Bharat Singh (2) Low Blood Pressure by Dr. P. C. Roy Aswarival (3) Pemphigus by Dr. Y. D. Kapoor (4) Outline of treatment of common diseases by Dr. J. Roy Chowdhury (5) Hæmoptysis by Dr. J. Roy Chowdhury and (6) Artificial Pneumothorax by Dr. J. Roy Chowdhury.

GHUGUDANGA BRANCH—The annual general meeting of the branch was held at B. K. Paul's garden, Ghugudanga on the 14th November, '51.

Dr. S. Sarkar was elected the president of the branch for 1951-52. Dr. S. C. Sen Gupta, Secretary; and Dr. R. N. Sarkhal, Joint Secretary.

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An ordinary meeting of the branch was held on the 26th August, 1951 with Dr. S. Sarkar in the chair. Nineteen doctors attended. Nominations for the provincial office-bearers were finalised.

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The annual general meeting of the branch was held on the 4th November, 1951 with Dr. S. Sarkar in the chair. Twentyfour members attended the meeting.

The annual report for 1950-51 was read and passed and new office-bearers were elected, with Dr. S. Sarkar as president and Dr. S. C. Sen Gupta as Secretary. The address of the branch office was changed to No. 8, Dum Dum Road, Calcutta 30.

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An ordinary meeting of the branch was held on the 9th December, 1951 with Dr. S. Sarker in the chair. A committee was formed to work out a plan and programme for opening a branch of the Bengal T. B. Association in the locality.

JAGATDAL BRANCH—The annual report of this branch shows that there is an increase in the number of members from 33 in 1950 to 41 in 1951. Almost every month, meetings were held and six clinical lectures were also arranged.

HOOGHLY-CHINSURAH-CHANDERNAGORE BRANCH—The fourteenth annual general meeting of the branch was held on the 2nd August, 1951 with Dr. A. Das in the chair.

During the year, five meetings were held, of which one was a clinical meeting where Dr. Sunil Dutta spoke on "Management of Fevers."

New office-bearers were elected with Dr. Ashutosh Das as president and Dr. Kartick Chandra Mollick and Dr. Sudhakar Ghose as secretaries.

KATIHAR BRANCH—A conference of medical practitioners was held on 18-11-51 at Katihar under the auspices of the I.M.A. Fiftytwo doctors attended the conference. Dr. K. Abraham I.A.S. unaugurated the conference and Dr. A. P. Varma, presided.

Papers on Snake Bite; Medical profession and public health; Asthma; Good teeth essential for good health; Preventable Blindness; Anæmia; Emergency in Obstetrical practice, and Short Review of medical Therapeutic,—were read and discussed in the conference.

KISHANGANJ BRANCH—The annual general meeting of the branch was held on the 7th November '51 at the residence of Dr. N. K. Roy. New office-bearers for 1951-52 were elected with Dr. S. Kumar as president and Dr. N. Das as secretary.

KRISHNA DISTRICT BRANCH—The annual report of the branch for 1950-51 shows that eight meetings were held during the year and scientific discussions were arranged on nineteen occasions.

KANPUR BRANCH—In a meeting held on the 6th December 1951, under the presidentship of Dr. B. N. Bhallay, the members condoled the sad, sudden and untimely death of Dr. L. N. Mehrotra, a senior member of the branch.

KOTALPUR BRANCH—A general meeting of the branch was held on the 8th September, 1951. Dr. Mohini Mohan Roy was elected, the president and Dr. Saroj Kumar Chatterjee, secretary for the year 1951-52.

LUDHIANA BRANCH—The annual report of the branch for the year ending 30-9-51, shows that the branch met 21 times during the year. Fiftyone members were on the roll of the branch on the 1st October '51. Dr. Chhabil

Das is the president and Dr. M. R. Tuli, the Secretary of the branch.

MIRAJ BRANCH—The annual general meeting of the branch was held on the 1st October, '51. Dr. N. V. Gharpure and Dr. M. S. Karandikar were elected the president and secretary respectively for the year 1951-52.

* * * * *

In a special meeting held on the 16th October '51, farewell address was given to Dr. E. H. Evans.

* * * * *

Another meeting of the branch was held on the 14th November, '51 to congratulate Dr. N. G. Khabade of the Mission Hospital on his passing the D.O.R.L. examination.

NILGIRIS BRANCH—The annual report of the branch for 1950-51 shows that 63 members were on the roll. The branch held 13 meetings during this session.

ORISSA STATE BRANCH—The annual meeting of the council of the branch was held on the 7th October, 1951. A meeting of the working committee was also held on the same date. Dr. P. Satyanarayana was elected the president and Dr. R. Mahanti, the secretary of the branch for 1951-52.

PARTABGARH BRANCH—In the annual meeting of the branch office-bearers for 1951-52 were elected with Dr. P. R. Sure as president and Capt. Shyamlal as secretary. Six meetings were held during the year.

NILGIRIS DISTRICT BRANCH—The annual meeting of the branch was held on the 4th November, 1951 with Lt.-Col. J. C. Bharucha in the chair. After the presentation of the annual report, office-bearers for 1951-52 were elected with Lt.-Col. J. C. Bharucha as president and Dr. P. V. Kurian as secretary.

Dr. M. P. Pai, spoke on " Place of Surgery in the treatment of tuberculosis " Dr. Thiranvengadam gave case histories of patients on whom he had operated for abdominal tuberculosis, Dr. N. Jaganathan demonstrated skiagrams of patients treated with artificial pneumothorax and streptomycin.

POONA BRANCH—The 22nd annual report of the branch for the year 1950-51 shows that the managing committee held 9 meetings in the year. The general body met on 9 occasions besides there were special meetings.

Fourteen clinical papers were read and discussed in the above meeting.

New office-bearers for 1951-52 were elected with Dr. K. C. Gharpure as the president and Dr. M. R. Phadaka and K. N. Jejurikar as joint secretaries.

PORBANDAR BRANCH—The monthly clinical meeting of the branch was held on the 7th October '51 with Dr. H. H. Chavda in the chair. 18 members and 2 doctors by special invitation were present.

Dr. K. J. Vyas read his paper on " Ricket," Dr. M. C. Sanghvi on " Disease of old," Dr. G. S. Nathwani on " Diseases of Beard " and Dr. C. R. Shah read a case report on " Addison's Disease."

* * * * *

An urgent meeting of the branch was held on the 4th November 1951 to meet the deputation of Ahmedabad Medical Society. The object of the deputation was to call a Commonwealth Conference and also to celebrate the Golden Jubilee of the Ahmedabad Medical Society. In the meeting Dr. N. R. Desai spoke on " Infections of the hand " which was very much appreciated.

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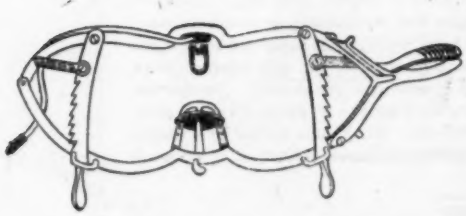

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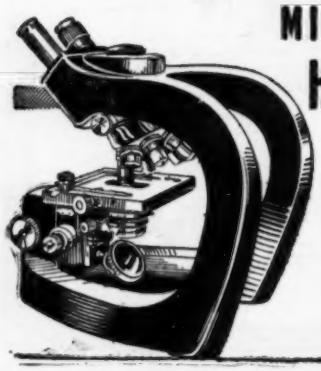

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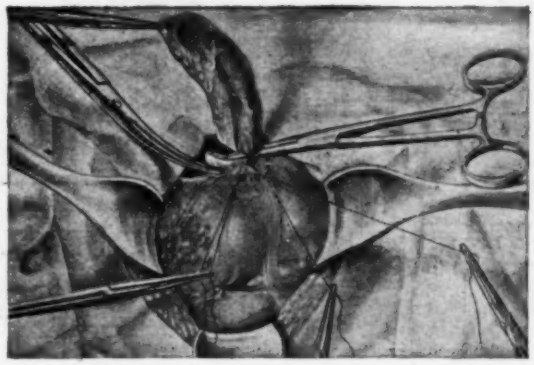

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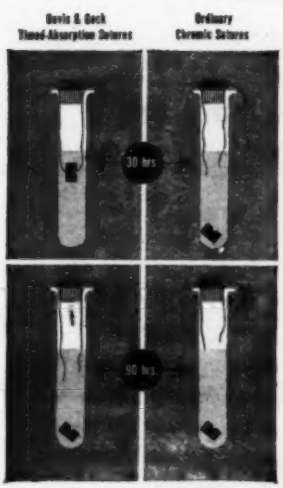

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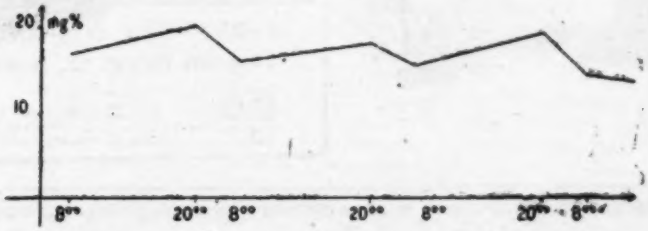

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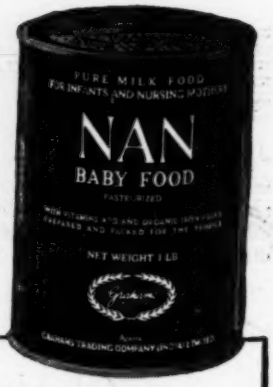

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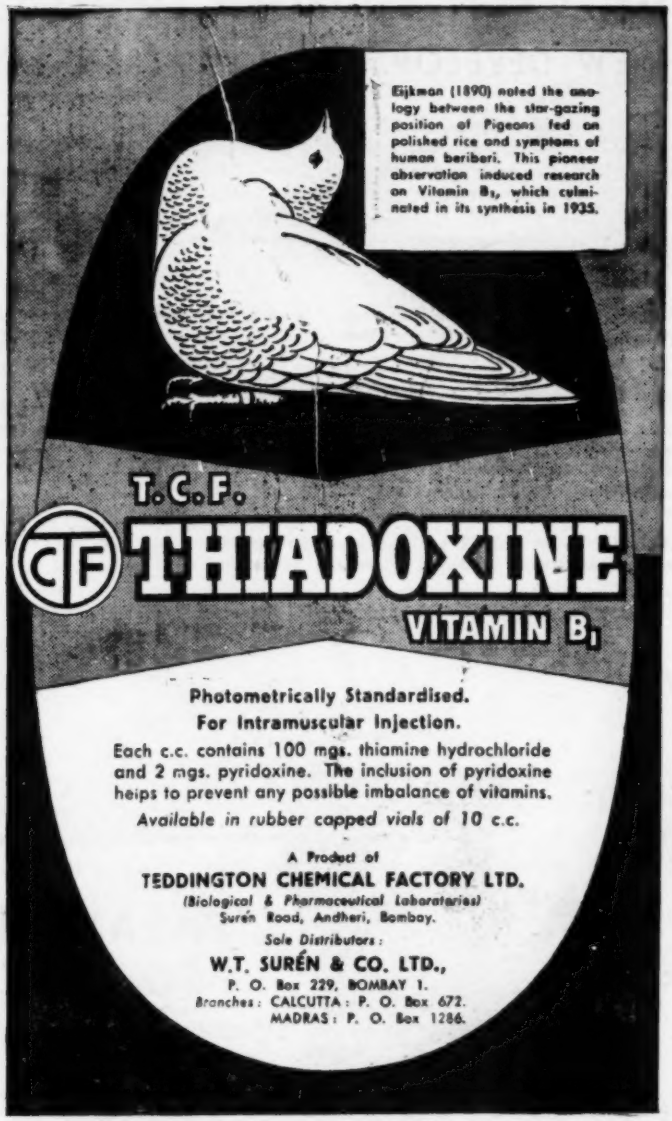
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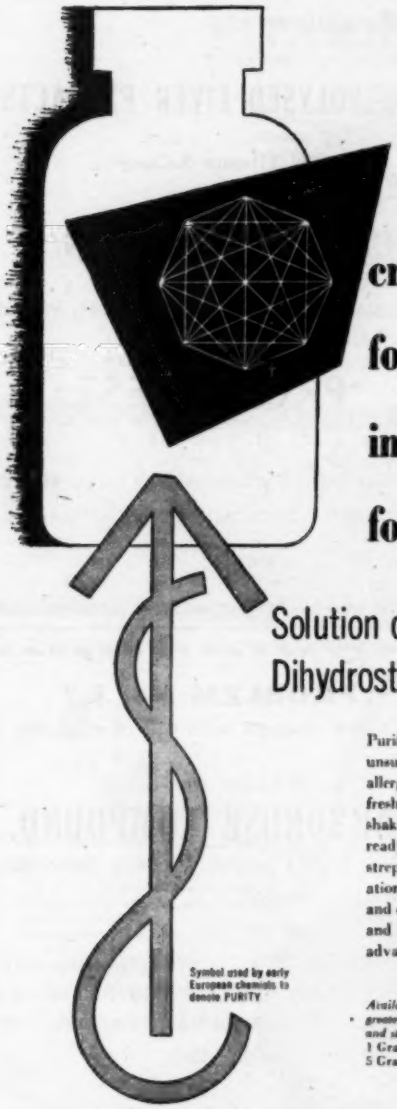

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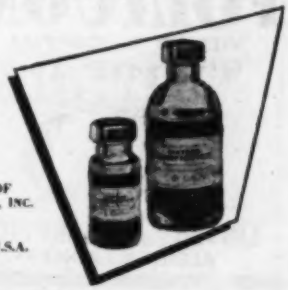

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Journal of the Indian Medical Association

VOL. XXI. NO. 5 CALCUTTA FEBRUARY, 1952

ORIGINAL ARTICLES

STUDIES ON CARBOHYDRATE METABOLISM IN TOXAEMIA OF PREGNANCY

2. BLOOD SUGAR IN TOXAEMIA OF PREGNANCY WITH PARTICULAR REFERENCE TO ECLAMPSIA

CHUNILAL MUKHERJEE,

Department of Obstetrics and Gynæcology, Nilratan Sarkar Medical College, Calcutta

It is generally agreed that blood sugar remains within normal limits in both normal pregnancy and pre-eclampsia. In a recent review of the subject, Plummer (1936) observed that " Toxæmias in pregnant women show no change of blood sugar levels which would differentiate these from normal gestation." Earlier investigations by Morris (1917), Benthin (1922), Stander and Radlet (1926), Hellmuth (1927), and Novak (1928) amply confirm this statement. In 78 cases of normal pregnancy, and 100 cases of pre-eclampsia, the writer estimated the fasting level of blood sugar. The method of estimation has already been described (Mukherjee, 1952). The values obtained are presented below.

Normal Pregnancy (78 *cases*)

Average = 89·9 mgm. per 100 ml. ± 11·7

Maximum = 117·6 mgm. Minimum = 63·8 mgm.

Mild Pre-eclampsia (50 *cases*)

Average = 87·03 mgm. per 100 ml. ± 12·3

Maximum = 109·7 mgm. Minimum = 64·2 mgm.

Severe Pre-eclampsia (50 *cases*)

Average = 83·7 mgm. per 100 ml. ± 17·4

Maximum = 123·8 mgm. Minimum = 61·3 mgm.

The difference between the mildness and severity of pre-eclampsia was to some extent arbitrary, being based on the blood pressure level at the time of investigation. The border line was the systolic pressure of 150, and the diastolic pressure of 100 mm. Hg. The reason for this has already been discussed (Mukherjee and Govan, 1950). In both mild and severe pre-eclampsia, blood sugar was within normal limits. The small variations in the average are obviously not significant. The range of values also does not show much difference in the three groups.

Blood sugar values in eclampsia, however, have been a subject of great controversy. Wieden (1915), Benthin (1922), Obata (1923), Walthard (1923), and Stander and co-workers (1925) observed that the blood sugar level is raised in eclampsia. Most of these authors believe that this hyperglycæmia is the effect of convulsions. Stander and Radlet (1926) found that the state of hyperglycæmia persists for an appreciable time after the cessation of convulsions, and Stander and Harrison (1929) believe that this raised level of blood sugar is related to a change in the alkali reserve of the blood, and a consequent alteration of the hydrogen ion concentration of the liver cells.

Levy (1927), Titus, and co-workers (1928), Lefferty (1931), Siedentopf (1932, 1938), Siegel and Wylie (1933), Chamina and Brutschenkowa (1935), and Posati (1938) found that the convulsions of eclampsia were associated with a state of hypoglycæmia. On the basis of these findings Titus and co-workers (1928) advocated the use of hypertonic glucose solutions in the treatment of eclampsia. There is a general agreement about the effectiveness of this treatment, although the rationalé has been subjected to much dispute. In view of these divergent findings it was thought that an investigation in this direction may provide useful information as to the state of the metabolism of sugars in eclampsia. Altogether 48 cases of eclampsia were studied for this purpose. The results will be presented and discussed in three stages.

1. *The Average Basal Blood Sugar Level*—This was determined in all 48 cases in this series. The sample of blood was obtained on admission, or 12 hours after the last meal, whichever was sooner. The values obtained were widely scattered, and extended between 60·5 and 92·3 mgm., with an average of 77·15 mgm. per 100 ml. ± 5·34. Compared with normal pregnancy these values show a slight shift to the left. The differences in the averages, however, do not indicate a high degree of statistical significance. In this series 17·8 per cent of the values were less than 80 mgm. per 100 ml. In normal pregnancy, and in pre-eclampsia the corresponding state was observed in 10·3 and 12·1 per cent of patients respectively. In this connection, it may be of interest to note that in an analysis of 22,808 blood

sugar estimations in non-diabetic persons, John (1928) found that in 11 per cent the values were below this accepted minimum standard of normality. Thus, it is difficult to conclude that eclampsia causes either hypo- or hyper-glycæmia. When the number of cases in each group is taken into account, the slight preponderance of hypoglycæmic values in eclampsia does not appear to be significant.

2. *Blood Sugar After Convulsions*—A study of the nature described above indicates merely the average state of the blood sugar in eclampsia without revealing the manner in which it is affected by the onset of the eclamptic seizure. Seven patients in the present series developed eclampsia during their stay in the hospital, and an opportunity presented itself of comparing the blood sugar values in the pre-eclamptic and eclamptic states. Those in the pre-eclamptic state represent the fasting blood sugar levels. When eclampsia developed blood sugar was estimated after each convulsion. The results are shown in Table 1.

TABLE 1—BLOOD SUGAR IN ECLAMPSIA, MGM. PER 100 ML.

	*Pre-convulsive stage**	*No. of convulsions Convulsive stage*									*24 hrs. after last convulsion*
		1	2	3	4	5	6	7	8	9	
1. H.	87·0 (16)	114·5	89·0	...	...	...	...	...	...	...	83·7
2. A.	81·8 (21)	61·2	107·6	86·4	...	...	...	...	...	...	93·5
3. Ha.	76·2 (7)	77·5	81·7	134·8	70·0	81·2	80·6	64·5	72·1	...	98·3
4. P.	101·0 (13)	93·0	95·5	106·2	100·0	72·5	...	...	...	...	79·4
5. M.	88·5 (11)	158·6	107·5	66·0	80·5	81·5	93·7	76·8	...	...	82·0
6. J.	69·0 (17)	73·5	78·4	75·5	93·5	70·8	91·2	80·4	67·0	...	76·6
7. F.	110·0 (14)	92·0	73·5	77·5	100·0	88·8	70·0	68·0	86·5	108·5	83·7

* Figures in parenthesis represent the number of hours before the onset of eclamptic convulsions when the test was done.

These cases demonstrate that eclamptic convulsions *per se* do not affect the level of blood sugar in any consistent manner. As none of these patients received any intravenous glucose during this investigation the values obtained during the convulsive stage are comparable between each other, and with those obtained before the onset of eclampsia. An analysis of the data will show that, as a result of convulsions, the blood sugar may rise or fall with an almost equal frequency, in some cases, and may remain unaltered in others. In this respect, the present findings disagree with those of Stander and Harrison (1929). These authors observed a consistent increase in blood sugar caused by convulsions in eclampsia.

However, one case in this series is particularly interesting (M. No. 5). This patient had the first three fits at intervals of 2 to 3½ minutes. The first convulsion was followed by a hyperglycæmic response. After the second and third convulsion the blood sugar rapidly decreased, and ultimately reached a hypoglycæmic level. Subsequent fits were widely spaced, and at these stages the blood sugar levels lacked in the consistency previously observed.

3. *Blood Sugar During Convulsions*—In order to understand the nature of changes affecting the blood sugar this study was further extended in 7 patients. The object was to determine how the blood sugar level varied before, during and after a convulsion. None of these patients had any form of glucose medication during the period of investigation. Blood for estimation of sugar was collected 5 to 15 minutes before,†

† In order to obtain this value, blood was collected every 10 minutes during the convulsive stage, until convulsions ceased. The sample which corresponded to this period only was estimated. This often entailed continuous observation for 2 to 3 hours, but as the analysis was done by the micro-method (0·2 ml. blood), the process did not entail any appreciable blood loss. The time and expectancy involved in this experiment account for the small number of cases studied. The method of estimation has already been described (Mukherjee, 1952). Isotonic sodium sulphate and copper sulphate were employed as anti-glycolytic reagent.

5 minutes after, and during the actual convulsion of eclampsia. The results are shown in Table 2, and Fig. 1.

TABLE 2—BLOOD SUGAR IN ECLAMPSIA BEFORE, DURING AND AFTER CONVULSIONS, MGM. PER 100 ML.

No.		*Before fits*	*During fits*	*After fits*
1.	De. ...	83·5	86·5	84·7
2.	Mk. ...	80·6	138·7	108·0
3.	Hi. ...	64·6	78·4	78·0
4.	Am. ...	128·6	158·8	96·2
5.	Dn. ...	156·5	140·0	93·5
6.	Ml. ...	76·0	76·0	77·7
7.	Mi. ...	93·5	77·6	75·5

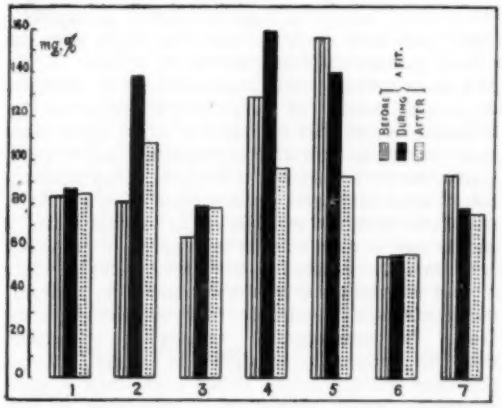

FIG. 1—BLOOD SUGAR IN SEVEN CASES OF ECLAMPSIA BEFORE, DURING AND AFTER CONVULSIONS

In 4 of these 7 cases blood sugar increased during the convulsion, but the extent of this increase was outside the scope of experimental error in 3 patients only. In 2 cases there was an appreciable fall, and in 1 instance (probably in 2) there was no recognisable alteration in the level of blood sugar. The series reported here is small, but in conjunction with the findings described above, it appears that the sugar concentration of the blood is not directly affected by eclampsia. Krieger (1934) who made a detailed study of the reducing substances of the blood in this condition also came to a similar conclusion.

However, a better understanding was available when in 2 patients blood sugar was estimated every ½ hour for 3 hours during the stage of eclamptic convulsions. The object was to obtain the trend of the blood sugar immediately preceding, and after a convulsion. The results of this study are shown in Fig. 2.

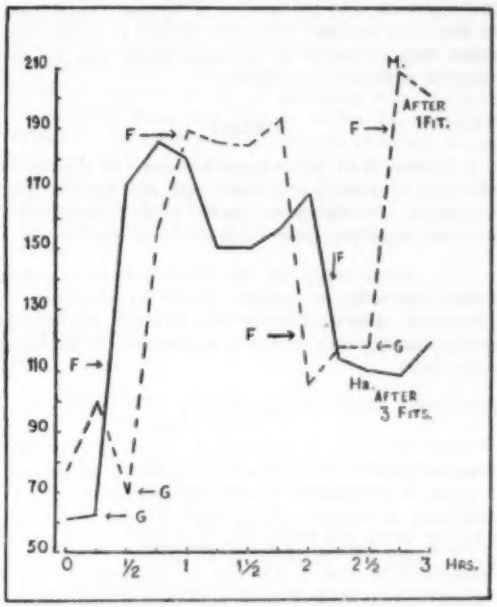

FIG. 2—BLOOD SUGAR IN TWO CASES OF ECLAMPSIA, ESTIMATED AT FIFTEEN MINUTES INTERVAL FOR THREE HOURS SHOWING THAT NO RELATION EXISTS BETWEEN THE TREND OF THE BLOOD SUGAR CURVE AND THE ONSET OF ECLAMPTIC CONVULSIONS

It will be seen that there is a complete lack of correlation between the blood sugar level and eclamptic fits. Both patients had repeated convulsions, and received intravenous glucose injections. Convulsions were found to occur irrespective of whether the blood sugar curve was ascending or descending.

CONCLUSION

The analysis presented above offers sufficient evidence to show that the onset of eclampsia (*i.e.* eclamptic convulsions) is not in any manner directly related to the level of sugar in the blood immediately preceding the convulsive stage. In a somewhat similar study of the subject Mays and McCord (1935) also concluded that there is no correlation between the blood sugar and the occurrence of eclamptic fits.

The manner in which a patient reacts after the convulsions obviously depends on the amount of glycogen available for mobilisation, and the speed with which the glycogen reserve of the body can be restored. It has already been demonstrated (Mukherjee, 1952) that the utilisation and storage of sugars in the body are usually adversely affected in toxæmia of pregnancy.

The status of the Cori-cycle pre-eclampsia and eclampsia is not adequately known. Whether an eclamptic convulsion raises or lowers the blood sugar is decided by the balance of these factors. In view of the present investigations, and the studies of Krieger (1934), and of Mays and McCord (1935) it is difficult to believe that either hypoglycæmia or hyperglycæmia can be the cause of eclamptic convulsions.

SUMMARY

Estimation of blood sugar was done in a series of 78 cases of normal pregnancy and 100 cases of pre-eclampsia. No significant change in the concentration of blood sugar was observed in the latter condition.

A critical study of the results of blood sugar estimations done in various phases of eclampsia is presented. The results show that eclamptic convulsions are not in any way related to fluctuations in the blood sugar level.

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PRENATAL SYPHILIS IN ONE OF TWINS

R. V. RAJAM, M.S., M.R.C.P. (EDIN.),

Dean and Hony. Consultant and Professor Emeritus of Venereal Diseases, Government General Hospital and Madras Medical College,

AND

P. N. RANGIAH, M.D.,

Specialist in Venereal Diseases, Government General Hospital and Lecturer in Venereal Diseases, Madras Medical College

It is now generally recognised that the pre-natal transmission of syphilis to the fœtus is of maternal origin. The organisms are carried from the maternal to the fœtal circulation *via* the placenta. The ancient theory of paternal transmission through germinal infection is a relic of pre-Wassermann era in syphilology. The phrase "without a syphilitic mother no syphilitic child" has been confirmed time and again with the help of parasitological and serological studies. It has been also established from examination of the embryos at various periods of their growth conducted by Hoffmann (1938), that no infection in the fœtus takes place prior to the 16th week of pregnancy, and it would appear that in the majority of cases the actual transmission of spirochaeta pallida takes place at or about the sixth lunar month of pregnancy. In this connection it may be well to point out that interruption to pregnancy in the first four months is rarely due to syphilis. There are still some unsolved gaps in our knowledge regarding the transmission of infection from the mother to the fœtus. The mechanism of transfer of spirochætes from the mother to the fœtus is obscure, but it is presumed that the former should suffer from a spirochætæmia, which enables the spirochætes to gain access to the sinuses on the maternal aspect of the placenta.

The organism of syphilis is rarely demonstrated in the circulating blood except probably for a short period during the early florid stage of infection. It is not known what factor or factors in the maternal organism determine the release of the parasites into the blood stream especially during pregnancy, for at this stage the maternal infection is usually asymptomatic.

The other problem is the exact mechanism by which the spirochætes gain access from the maternal into the fœtal circulation. In the early stages of placental development, the blood in the fœtal vessels is separated from the maternal blood in the intervillous space by their lining endothelium, the mesenchyme of the villus and the covering cyto- and syncytial trophoblast. In this way a barrier is interposed between the

two blood streams. After the fifth month the placental barrier becomes reduced in thickness due to the atrophy of the cyto-trophoblast. In the last stage of pregnancy the fœtal and maternal blood currents are separated only by a thin layer of syncytium and the endothelium of the fœtal capillaries. The permeability of the placenta is increased in the latter part of gestation. This is shown by the increased amounts of calcium, potassium, and iron found in the fœtus during the last months of pregnancy. It is also known that leucocytes are more numerous in the blood of the umbilical vein than in that of the umbilical artery. This latter fact suggests that leucocytes may migrate from the maternal blood through the placental barrier into the fœtal capillaries. On this analogy it is conceivable that spirochætes with their extraordinary motility may be capable of penetrating the placental barrier and get into fœtal circulation. The physiological changes in the placenta explain both the non-occurrence of infection before the fourth month, and the relative frequency with which spirochætes invade the fœtal circulation in the latter half of pregnancy.

One of the known features of familial syphilis is that a syphilitic mother may continue to be a source of infection to the fœtus long after she ceases to be infectious to her uninfected partner. It is also a well recognised fact that a syphilitic mother does not necessarily transmit the infection to each one of her offsprings. These peculiarities in the transmission of prenatal syphilis have been observed by clinicians since the time of Paracelsus in the sixteenth century. Two factors may account for such a behaviour. (1) Spirochætes may not be present in the mother's blood stream at all times. (2) If they are present they do not pass the placental barrier at certain times.

Atypical manifestation of syphilis in twin pregnancies has been a subject of fascinating study and speculation over the past one hundred years. Clinicians have observed a marked difference in the degree of involvement in a pair of prenatally infected twins, as well as a definite time interval between the manifestations of infection evidenced in each twin. More remarkable is the phenomenon of one of the twins escaping the infection whilst the other is definitely infected. It is only reasonable to assume that with single ovum twins both will either acquire or escape infection. However, several reports have appeared in recent years in the literature, in which it has been claimed that in single ovum twins one of the twins may escape infection (Penrose, 1937; Wolk, 1941). Syphilologists, seem to be of the opinion that these claims do not satisfy all the criteria necessary for the above contention. In some of these cases the monozygotic nature of the twins has not been confirmed. In others, adequate proof for the absence of syphilitic infection in one of the twins is lacking. Further in some of the reported cases the twins had reached adult life, and the possibility of an acquired infection in one of the twins could not be eliminated.

Reports of cases where one of double-ovum twins had escaped prenatal infection seem to be more common (Wile and Welton, 1938; Smith and Spence, 1941). The latter authors presented 2 personally observed cases of syphilis in one of new-born-twins, added 3 more cases from the records of the Johns Hopkins Hospital. In addition, they critically reviewed 12 cases reported in the literature between 1908 and 1938 of prenatal syphilis occurring in one of twins. The authors conclude that the phenomenon of prenatal infection of only one of the binovular twins is purely a matter of chance.

Wile and Welton (1938) have described certain criteria in order to establish the presence of prenatal infection in only one infant in twin pregnancy. These are:

(1) History, clinical, and serological examination of both parents.

(2) Examination of the fœtal membranes and placenta and the comparison of physical characteristics—the so-called similarity method to determine the types of twins whether monozygotic or dizygotic.

(3) Repeated physical and serological examination of both twins and autopsy in the case of death.

(4) Examination of the C.S.F. of the healthy twin.

(5) X-ray studies of all the long bones.

(6) Observation over a period of at least six months.

In view of the interesting nature of the condition the authors present a case of prenatal syphilis in one of a twin observed and studied by them in the Venereal Department of the Government General Hospital, Madras. While all the previous case reports on the subject have been of either European or American origin it is claimed that the present report is the first of its kind in India.

CASE REPORT

A Hindu, female, aged 35 years, wife of an unskilled casual labourer, residing in a suburban village of the City of Madras came on 11-5-51 to the Venereal Department of the Government General Hospital, Madras, with a set of male twins (Fig. 1, *vide* Plate), born on 19-12-1950. They were born at full term after a normal labour, with an interval of two hours between the births. The twins were reported to have been apparently healthy at birth. During the third month of their postnatal life the mother noticed sores in the mouth and anus in the younger one of the twins, (Fig. 2, *vide* Plate). The child was taken to a local dispensary where

an ointment was prescribed for external application. Finding no improvement she brought the infant to the Hospital, nearly two months after the appearance of the sores.

Previous familial and obstetrical history: Married 15 years ago. Table 1 gives the number of pregnancies with other relevant details:—

TABLE 1

Number of pregnancies	*Duration of gestation*	*Condition at birth*	*Sex*	*Present age*	*Remarks*
First	Full term	Alive and well	M	13 years	...
Second	Full term	Alive and well	F	10 years	...
Third	Full term	Alive and well	M	8 years	...
Fourth	Premature birth at the 8th month	Alive at birth Died within a few hours	M	...	...
Fifth	Full term	Alive and well	F	5 years	Prenatal syphilis at 3rd month. Treated at the clinic in 1946 at the 8th month.
Sixth	Full term	Alive and well	F	3 years	...
Seventh (twins) ...	Full term	Alive and well	Both males	5 months	One of the twins with clinical lesions.

During her fourth pregnancy, she developed an ulceration about the vulva at the fourth month, and was delivered of a premature infant at the eighth month in one of the lying-in hospitals in the city. The infant died of respiratory inadequacy a few hours after birth. The hospital records show that at the time of confinement the mother had an active condylomatous lesion on the vulva and the serological test for syphilis was positive. She was discharged from the hospital after an uneventful puerperium and was advised to attend the Venereal Clinic, for specific treatment. The patient did not follow this instruction.

Past history revealed that in November, 1946 she brought her fifth child aged eight months to the clinic, with sores about the genitalia and anus of five months' duration. The findings recorded at that time were:

Mother: No active clinical lesions. Blood serology—positive to Kahn and Wassermann reactions.

Child: Extensive condylomatous syphilides of the anogenital region. Dark-field positive to Treponema pallida. Both mother and the child had received a few injections of arsenic and bismuth and defaulted from further treatment and observation.

She sustained a sixth pregnancy resulting in the birth of a live child which is now three years old and apparently healthy.

The seventh pregnancy resulted in twins and comprised the record presented below:

Examination of the mother and the twins—The mother is a healthy middle-aged woman. Physical examination failed to reveal any active clinical evidence of syphilis except palpable epitrochlear lymph nodes.

First twin "R" is a well developed healthy infant weighing 11 lbs. Examination revealed no evidence of cutaneous, mucous, or skeletal lesions.

Second twin "L" is a healthy well nourished infant weighing 12½ lbs. Partly crusted moisty syphilides at the angles of the mouth and erosive lesions on the inner aspect of the lips were discovered. The palms and soles presented slightly pigmented infiltrated squamous lesions. Condylomatous syphilides around the anus, and circinate syphilides symmetrically situated over the volar aspect of the wrist were also present.

The other members of the family were examined clinically and serologically. Radiographic examination of the long bones of the twins was carried out. X-ray studies of the teeth and tibiæ of the fifth sibling were also carried out. The findings of the clinical, serological, and x-ray examination of the family (Fig. 3, *vide* Plate) are shown in Table 2.

FIG. 1—Twins.

FIG. 3—Members of the affected family, "S" denotes sibling.

FIG. 2—Twin "R" with a normal anus. Twin "L" shows anal syphilides.

FIG. 4—Skiagram of long bones of twin "R" showing no evidence of osseous lesions.

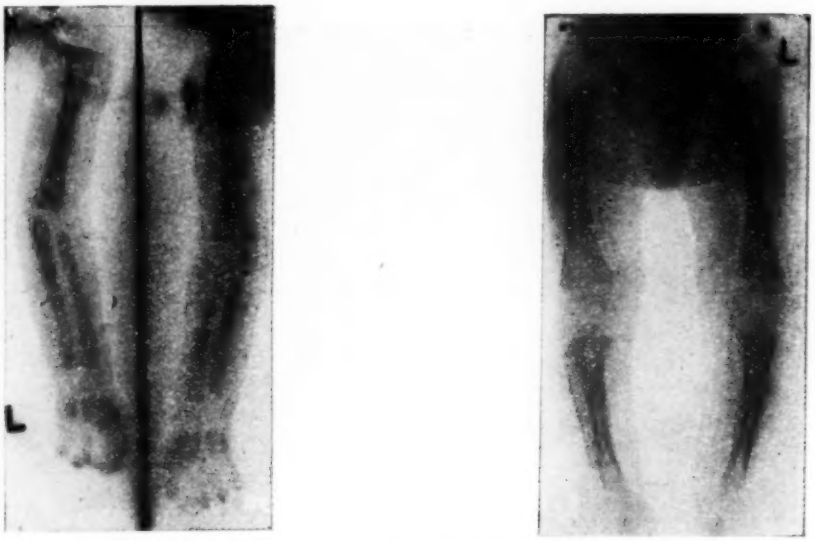

FIG. 5—Shows periostititis of the long bones especially of the tibiæ and the fibulæ in twin "L".

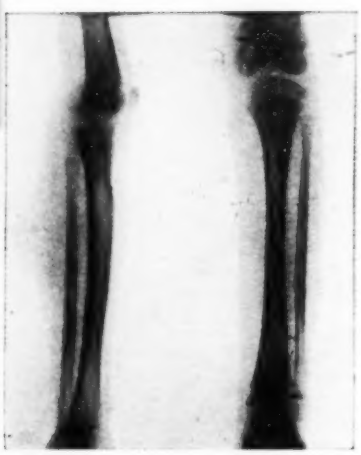

FIG. 6—Shows localised thickening of the upper part of the left tibia.

FIG. 7—Shows pegging of the unerupted upper incisors (?)

TABLE 2.

Family	Blood Kahn	Blood W.R.	C.S.F.	Clinical findings	Radiological findings	Remarks
Mother ...	+	+	Not done	Negative	Not done	...
Father ...	+	−	,,	,,	,,	...
1st sibling ...	−	−	,,	,,	,,	...
2nd ,, ...	−	−	,,	,,	,,	...
3rd ,, ...	−	−	,,	,,	,,	...
5th ,, ...	−	−	,,	Slight thickening of the upper part of the left tibia.	(1) Osteosclerosis of the tibia (left). (2) A suggestion of peg-shaped deformity of the unerupted upper incisors.	Darkfield—positive lesions at the 8th month of postnatal life in 1946.
6th ,, ...	−	−	,,	Slight bossiness of the forehead. Flattened bridge of the nose.	No abnormality detected.	...
7th ,, ...						
(First twin)	−	−	Negative	Negative	Negative.	...
(Second twin)	+	+	Negative	Cutaneous and muco-cutaneous syphilides.	Periostitis of long bones.	...

X-ray examination of the long bones of the first (healthy) twin revealed no abnormality while that of the second (with clinical lesions) showed periostitis of the long bones (Figs. 4 and 5, *vide* Plate). Among the siblings the fifth child, who was treated for early prenatal syphilis in 1946, now five years old, on physical examination showed a slightly visible and palpable painless thickening of the upper and anterior aspect of the left tibia. This was confirmed by x-ray (Fig. 6, *vide* Plate). Rœntgenogram of the unerupted incisors of the child showed peg-shaped deformity (Fig. 7, *vide* Plate). In spite of the history, and clinical evidence of prenatal syphilis in this child the serological tests were negative to both Kahn and Wassermann reactions at the time of the present examination. The negative reactions were maintained after a provocative injection of penicillin.

DISCUSSION

It is evident from the history of the case that the parents probably acquired the infection some years before the birth of the twins. The previous obstetric history shows that the infection of the mother dates back to the latter half of her fourth pregnancy in 1944. This pregnancy ended in a premature birth, and the infant did not survive for more than a few hours. At this time she suffered from active lesions on the vulva, and the serological tests were positive. The next pregnancy resulted in the birth of a live and apparently healthy baby which developed condylomatous lesions in the anogenital region a few months after birth. The child was treated in 1946 with arsenic and bismuth. Though the treatment was grossly inadequate according to the present standards the child has grown up apparently healthy and at five years of age reveals only a slight painless thickening of the upper part of the left tibia, while the serological tests are negative. The sixth child aged 3 years is clinically and serologically negative except for the dubious stigmata of a slight bossiness of the forehead and a flattening of the bridge of the nose.

There seems to be little doubt that one of the twins had prenatal syphilis. It may be contended that the period of observation of the healthy uninfected twin is not sufficiently long to pronounce a definite opinion that it has escaped infection but the completely negative clinical, serological, and roentgenological findings in the healthy twin at the age of five months should be taken as fairly conclusive evidence that the twin has escaped infection. It is usually accepted that the child born of a syphilitic mother is unlikely to be infected with syphilis if there is no evidence of infection clinically, serologically, and roentgenographically during the first six months of its postnatal life.

From interrogation of the family midwife who conducted the confinement, it elicited that the placenta of the twins was double but fused by their contiguous margins. Anthropometric and morphological studies of the twins are said to be more reliable for establishing the type of twins, whether single or double ovum but such studies are of value only in older twins from two years upto adolescence. The physical characteristics and anthropometric measurements of the twins are listed in Table 3.

TABLE 3.

	Twin "R" (Healthy)	*Twin "L" (with prenatal syphilis)*
WEIGHT	4·4 kgm.	5 kgm.
STATURE	58 cms.	61·5 cms.
Maxium finger reach ...	54 ,,	54 ,,
Height sitting ...	37 ,,	40·4 ,,
Height to sternal notch	22 ,,	23 ,,
HEAD		
Length	14·7 ,,	14·6 ,,
Breadth	11 ,,	12·1 ,,
Height	11 ,,	10 ,,
FACE		
Length to Nasion ...	5·6 ,,	6·3 ,,
Length to Crinion ...	11·9 ,,	10·9 ,,
Breadth Bizygomatic ...	9·4 ,,	10·6 ,,
Diameter frontal minimum	8·9 ,,	10·4 ,,
Diameter Bigonial ...	7·1 ,,	7·6 ,,
NOSE		
Length to Nasion ...	2·3 ,,	2·3 ,,
Breadth ...	2·2 ,,	2·5 ,,
MOUTH		
Breadth	4·8 ,,	5·4 ,,
LEFT EAR		
Length	4·4 ,,	4·5 ,,
Breadth	2·4 ,,	2·2 ,,
CHEST		
Breadth at nipple height	14·1 ,,	15·2 ,,
Depth at nipple height	14 ,,	12·5 ,,
LEFT HAND		
Length	7·2 ,,	6·6 ,,
Breadth	3·7 ,,	3·7 ,,
LEFT FOOT		
Length	9·2 ,,	9·3 ,,
Breadth	4·2 ,,	3·8 ,,
LEFT LEG		
Girth maximum ...	15 ,,	15 ,,
COLOUR SKIN ...	Medium brown.	Dark brown.
COLOUR CONJ. ...	Slight blue.	Slight blue.
EYE SLITS ...	Horizontal.	Horizontal.
HAIR	Sparse, straight and soft.	Medium, straight and soft.
COLOUR HAIR ...	Light brown.	Black.
FOREHEAD ...	Normal	Normal.
SUPRA-ORBITAL RIDGES	Prominent.	Not prominent.
NASION DEPRESSION	Medium.	Normal.
NASAL BRIDGE ...	Concave.	Concave.
NASAL SEPTUM ...	Slightly upwards.	Slightly upwards.
MOLARS	No prominence.	Not prominent.
ALVEOLAR PROGNATHUS	None.	None.
LIPS	Medium.	Medium.
CHIN	Ordinary.	Ordinary.
ANGLES	Not prominent.	Not prominent.
NECK		
Girth	28 cms.	27 cms.
GENERAL STATE OF BODY	Medium.	Plumpy.
EARS	Nil particular.	Nil particular.
FINGERS AND TOES	Medium.	Length medium. No abnormality.
POSITION ...	Normal.	Normal.

The study shows obvious differences in the shape of the skull, colour of the skin, contour of the face, colour of the eyes, stature and weight of the twins. From the evidence available it would appear that the twins are fraternal in type, and only one of them was affected. The infection of one of the twins must have occurred by the transmission of spirochætes across one of the placentæ. The modern concept of the diaplacental mode of transfer is based on histopathological and serological evidence, and is generally accepted. The protection afforded by the placental barrier separating the maternal-fœtal circulation is such that it may be the determining factor in the escape of infection by the fœtus not only in single pregnancies but also by one of the twins in twin pregnancies. If the blood stream in the mother harbour spirochætes it would appear anatomically impossible for one of the twin placentas to escape contact with them. But the physiological atrophy and reduction in the thickness of the barrier in the latter half of pregnancy and the variation in its permeability may reasonably account for the escape of infection by one of the twins. Another possible explanation is the genetic factor of an innate resistance to infection of the healthy one of the twin infants.

SUMMARY

1. A short review of the pathogenesis of prenatal syphilis is presented.

2. A case of prenatal syphilis in one of fraternal twins is described with a review of the relevant literature. It is claimed that this is the first report of its kind in this part of the world.

3. The capricious and unpredictable factor in the mechanism of transmission of prenatal syphilis is stressed.

ACKNOWLEDGMENT

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NECESSITY OF B-COMPLEX FACTORS IN THE TREATMENT OF ANAEMIAS*

J. C. PATEL, M.D., B.SC., PH.D., M.R.C.P.,

(From King Edward Memorial Hospital, Parel, Bombay)

The practice of giving mixtures of liver extracts, folic acid, iron and vitamin B to patients with anæmia in the hope that one or the other of these substances might hit the mark deserves critical comment. This method is slip-shod (Dameshek, 1948).

The majority of Indians, particularly women, live with a blood level which is below the minimum normal. These people do not seek medical advice till they have reached a blood level of 2,000,000 red blood cells or 40 per cent hæmoglobin or less. Even then, they will give you history that they were doing a full day's work till about a week or at most 4 weeks prior to seeking medical advice. When such patients are treated with a few injections of liver extract they improve and go upto a level which is below normal. They relapse after a few months in the absence of the eradication of their causes of anæmia which are dietary factors, gastro-intestinal infections, poverty. If such patients are adequately treated for a period of say 6-12 months after eradication of the causes, there will be little chance of relapses. Of course, the majority of patients are reluctant to take a long treatment and the cost of it is another factor. We add difficulty to the economics of the patient by adding B complex factors to the specific anti-anæmic substances.

The vitamins, aminoacids and minerals are the known factors concerned in the formation of red cells. Recent research tends to show that nucleic acid metabolism is deranged and this leads to formation of megaloblasts instead of normoblasts. The megaloblasts are present in the bone marrow of the addisonian pernicious anæmia, nutritional and tropical macrocytic anæmia, pernicious anæmia of pregnancy and macrocytic anæmia associated with sprue, pellagra. The presence of megaloblasts in the bone marrow are synonymous with the deficiency of anti-anæmic substance(s), *i.e.*, vitamin B_{12}, pteryl glutamic acid, thymine, methyl uracil or substances present in liver extract, marmite, gastric mucosa. Due to presence of any one or more of the above substances, a chain of enzymic reactions occur which convert the nucleic acid metabolism to form normoblastic hæmopoiesis. In addition to the above substances required to start enzymic process, the aminoacids of proteins are most important building materials for erythropoiesis. Hence deficient ingestion (food of poor nutritional quality or in insufficient quantity) and deficient absorption from gastrointestinal tract of these important substances are factors in the causation of anæmias prevalent in the tropics. Iron deficiency also occurs. At a later stage, in addition to anæmia, manifestations of deficiency of a number of vitamins particularly those of B complex series become evident. These may be due to deficient intake, poor absorption or insufficient production in the intestines by altered bacterial flora.

Due to circumstances enumerated above, a patient of anæmia may present himself not only with symptoms and signs of anæmia but also with associated manifestations of deficiency of vitamin B complex factors. Naturally, we are tempted to treat such patients with known factors of vitamin B complex in addition to specific substances. The main question before us is 'Should we use B complex factors in the treatment of anæmias in addition to specific anti-anæmic substances?' It has become customary for the majority of doctors in this part of the world to use B complex factors in addition to specific anti-anæmic substances like liver extract, pteryl glutamic acid, vitamin B_{12} and iron in the treatment of anæmia—macrocytic or microcytic or hypochromic.

We will consider the available evidence regarding the part played by each member of the vitamin B complex series in erythropoiesis.

B complex factors are not needed in hæmopoiesis as can be seen from the following facts:

Riboflavin—Normocytic anæmia occurs due to riboflavin deficiency in animals like the rat (Kornberg *et al.*, 1945), dog (Potter *et al.*, 1942), pig (Wintrobe *et al.*, 1944), and monkey (Copperman *et al.*, 1945 and Wisman, 1944), but it has got no action on anæmias associated with riboflavin deficiency in human beings (Mayer *et al.*, 1942). Angular stomatitis, vascularization of the cornea and glossitis are important manifestations in human beings (Sebrell and Butler, 1939 and Sydenstricker, 1941). Sometimes, these conditions are associated with anæmias. Administration of riboflavin in these conditions will cure the deficiency manifestations but will have no effect on the concomitant anæmias (Spector *et al.*, 1943).

Nicotinic Acid deficiency produces normocytic, normochromic or macrocytic anæmias in the dog with a hypoplastic bone marrow (Handler and Featherston, 1943). As you all know, nicotinic acid cures pellagra and hence it is considered the most important factor causing pellagra. One realises that in pellagra, nicotinic acid deficiency (Sydenstricker, 1941) is the fundamental and the most important deficiency, but a pellagrin may have multiple deficiencies in the advanced stage of the disease. Nicotinic acid cures or ameliorates most of the symptoms of pellagra but does not cure anæmia. Besides, in pellagra, anæmia is not of one specific type. Different observers have found different percentages of types of anæmias in a series of pellagrins. Turner (1933), in a careful study of 22 anæmic pella-

* A paper read before the fifth Gujarat and Saurashtra Provincial Medical Conference held at Nadiad in March, 1951.

grins, found that anæmia was either normocytic or microcytic and in no instance was of macrocytic type. Anæmia was present in 44 per cent (Turner, 1933), 63 per cent (Sydenstricker, 1941) and 84 per cent (Huck, 1923) of three different series, *i.e.*, anæmia was not present in all cases of pellagra, and it is variable in nature. All these suggest that nicotinic acid has no important part in erythropoiesis of human beings. Two cases of macrocytic anæmia were treated with 400 mgm. daily of nicotinic acid for 15 days in King Edward Memorial Hospital, Bombay, without any hæmatological improvement (Patel, 1944).

Vitamin B_1 is one of the first vitamins to be isolated and synthesised, and it is known to be associated with beriberi long before its synthesis. It does not play any part in the causation of anæmias in any animal species (Kornberg *et al.*, 1945) as well as in human beings.

Pyridoxine (vitamin B_6)—This vitamin has been associated with anæmias of microcytic, hypochromic type in chicks (Luckey *et al.*, 1945), rats (Kornberg *et al.*, 1945), dogs (McKibbin *et al.*, 1942 and Moore *et al.*, 1943), and pigs (Wintrobe *et al.*, 1943), but has no action in hæmopoiesis in human beings. Not only it has no importance in the hæmopoiesis, but it has never been conclusively demonstrated to be essential to human nutrition. A number of authors have felt that pyridoxine increases serum iron in animals but there is no evidence, to date, that pyridoxine is directly concerned with the synthesis or metabolism of the porphyrins, and hence hæmoglobin, an iron-porphyrin complex.

Kark *et al.*, (1940) treated four cases of pellagra, one case of idiopathic hypochromic anæmia and one case of nutritional macrocytic anæmia with pyridoxine and in none of the cases did anæmia respond to pyridoxine therapy.

A number of manufacturers have brought out tablets of iron with addition of B complex vitamins with a claim that addition of B complex factors help more effectively the absorption and utilization of iron.

Moore *et al.*, (1943) studied 32 patients with hypochromic macrocytic anæmia associated with nutritional deficiencies of various types and found that iron therapy alone produced a satisfactory reticulocyte response and a rate of hæmoglobin generation. Brewer's yeast had no demonstrable effect in increasing the efficacy of iron therapy. They conclude that if pyridoxine therapy was deficient in this state of the patient it was not accompanied with hypochromic anæmia with high serum levels. Pyridoxine has been ineffective in the treatment of Cooley's or Mediterranean anæmia where there is a high serum iron level. It has been found to be ineffective in the treatment of anæmia of nephritis, aplastic anæmia from various causes, anæmia of infections, pernicious anæmia and, lastly, anæmia of malnutrition.

Pantothenic Acid when deficient produces normocytic, normochromic anæmias in pigs)Wintrobe *et al.*, 1943), and in rats (Daft *et al*, 1945) but has got no action in human anæmias. Some years ago I used pantothenic acid in two cases of macrocytic anæmia without any success (Patel, 1940). Even in animals (Fonts *et al.*, 1940) anæmia produced by diet deficient in pantothenic acid, responded to pantothenic acid only partially.

In *Choline* deficiency in animals particularly in dogs (McKibbin *et al.*, 1942) a marked decrease of hæmoglobin occurs but treatment with choline failed in most cases to restore the blood, probably due to irreversible damage to the liver.

Biotin, a factor necessary for the growth of yeast, is found in large quantities in the yolk of eggs, and is one of the new factors of B complex. In dogs (Reugamer *et al.*, 1945), biotin was necessary for the production of hæmoglobin values greater than 14 gm. per cent maintained on a highly purified alcohol-extracted casein ration. In rats (Kornberg *et al.*, 1945) its deficiency does not produce any hæmoglobin deficiency. The value of biotin in human nutrition is not defined.

There is no evidence that p-aminobenzoic acid and inositol are concerned in hæmopoiesis in any species.

In conclusion, certain vitamins namely riboflavin, nicotinic acid, pyridoxine have been shown to be essential for normal erythropoiesis in at least one species each. It has been claimed that ascorbic acid, pantothenic acid, choline and biotin play a role in erythropoiesis but these claims need substantiation. There is no evidence that thiamine or inositol is concerned in red cell formation. The significance of p-aminobenzoic acid is not known.

Moore *et al.*, (1944) have reported the occurrence of macrocytic anæmia in 56 patients who had existed for years on diet inadequate in animal protein and in vitamin B complex. Most of the patients had clinical evidence of pellagra, ariboflavinosis or beriberi. Niacin given in conjunction with 7 other known synthetic B vitamins did not affect the erythropoietic equilibrium. Moore *et al* (1944) in a study of hypochromic anæmia in 32 patients with pellagra and other vitamin deficiencies, reported that iron therapy alone produced a satisfactory reticulocyte response and rate of hæmoglobin regeneration.

Common B-complex preparations which are used in the treatment of anæmias contain vitamin B_1, riboflavin or vitamin B_2, nicotinic acid, pyridoxine, pantothenic acid. The amount of each of these mixed in a vial varies with each manufacturer. A number of factors must be playing a part in the composition of such a mixture. Two important factors are: 1. a sale value; 2. economics—buying capacity of consumers.

Certain substances like pantothenic acid, riboflavin and pyridoxine are more expensive than others and the amount of these in some of the preparations is nominal.

However, we are hardly concerned with the composition of each one, but the majority of us have a predilection for some manufacturer.

The main important question before us is ' Should we use them in the treatment of a case of anæmia regardless of manifestations of deficiencies of these factors?' My answer to that is 'No.' They are not necessary, they unnecessarily increase the cost of treatment to the patient or to ourselves. The important reasons for this negative answer are: 1. as shown above, they have no erythropoietic action on human beings; 2. leaving alone the erythropoietic action, the value of some of them in human nutrition is not defined; 3. a case of anæmia showing multiple deficiencies improves with liver extract given alone. By treatment with liver extract, not only there is improvement in the blood but the deficiencies present correct themselves. This may be due to two reasons: a) some unknown factors in the liver might be stimulating some enzymic reactions to make up for these B-complex factor deficiencies; (*b*) increased intake of food occurring as a result of improved appetite and (*c*) better assimilation of the ingested food and (*d*) change in bacterial flora of intestines.

We have gone through four different phases in the treatment of anæmias since 1927 when liver was introduced in the treatment of pernicious anæmia by Minot and Murphy. The first period was between 1927 and 1936. During this period, liver extract by injection rapidly took the place of oral method. Liver extract, then in vogue, was crude and refined but both of them when given in sufficient dosage cured all cases of anæmias—tropical macrocytic anæmia, sprue, macrocytic anæmia of pregnancy, of pellagra—commonly prevalent in our country. During this period, all deficiencies, which are ascribed to B-complex factors, recovered with liver extract treatment alone.

The second phase was between 1936 and 1945, a period during which synthesis of a number of B-complex factors occurred. Vitamin B_1 was the first one to be synthesised and put on the market. When this product was available, it became the practice of the clinicians to mix vitamin B_1 with liver extract in the treatment of anæmias. Two years later, riboflavin was available and immediately both vitamin B_1 and riboflavin were added to the liver extract in the treatment of anæmias. So much so that by 1944 we had all these vitamins available in one single vial and competition among the manufacturing houses went on to increase the dosage of each one of them till economics (cost of ingredients) prevented them from further increase.

Between 1945 and 1948 (third phase) we had folic acid for the treatment of macrocytic anæmias and, as we are all aware, folic acid alone was used by us successfully in a number of cases of macrocytic anæmia without any addition of liver extract or B-complex factors. Folic acid by itself has the property of regenerating the blood upto a certain level in macrocytic anæmias commonly prevalent in our country. But some of us were still not satisfied and we treated some cases with combination of liver extract, B-complex and folic acid. Sometimes there might have been a precipitation due to interaction of ingredients in a syringe but the G.P. or H.P. had to carry out the instructions of a consultant.

Lastly, since 1948 (fourth phase) we have now a period in which we have vitamin B_{12} available for the treatment of macrocytic anæmias. Fortunately for us, B_{12} is cheaper as it is a side product in the manufacture of streptomycin and hence it threatens to oust the previous hæmopoietic substances. It has been well recognised that vitamin B_{12} by itself, given in sufficient dosage (Chowdhury, 1951; Patel 1948; Patel, 1950; Patel and Kocher, 1950) for an adequate length of time will produce a complete regeneration of blood in most of the cases of macrocytic anæmias, but we are hardly satisfied with the result and we like to mix vitamin B_{12} with other B-complex factors.

We can see, from these four periods, particularly in the first period, where B-complex factors were not isolated nor synthesized, that liver extract alone was sufficient in the treatment of all macrocytic anæmias. If that was so, do we need the addition of B-complex factors to-day? In the majority of cases, addition of B-complex factors not only increases the cost but also increases the pain of the injection. I would certainly follow a line in the treatment of macrocytic anæmia with either liver extract, folic acid or vitamin B_{12} without any additional substances.

The treatment of iron deficiency anæmia can be carried out with either iron by mouth or by intravenous injection which has been lately introduced, but there is no necessity for additional B-complex factors in iron deficiency anæmia.

Arguments brought forward for exclusion of B-complex factors in macrocytic or microcytic type of anæmia do not mean that we should not use B-complex factors in a number of other conditions. They are of great use in cases of beriberi, neuritis, pellagra, cheilosis, and a nnumber of other deficiencies which occur without association of anæmia. But in using B-complex or any one of them we must always keep in mind that excessive use of any one of them or disproportionate use (because the mixture of vitamin B-complex might be so) of all of them together might produce a condition deficiency of others which we should guard against, and this has happened in the treatment of anæmias as reported by Davidson and Girdwood, where two patients with pernicious anæmia and three with sprue showed deficiency of B-complex factors which later responded to liver extract. They say that from a practical and clinical point of view it is clear that administration of liver or of liver extracts will prevent the occurrence of certain features of vitamin deficiency and alleviate or cure them if they

are established. They further say that folic acid has a dramatic effect in a sprue syndrome but even here they recommend in the treatment of sprue syndrome folic acid supplemented by liver extract. In view of all this we should certainly look to the specific medications for specific deficiencies and should not fall back on shot-gun therapy which is expensive and unethical.

SUMMARY

1. Importance of thorough investigation of the cause of anæmia is stressed.

2. Shot-gun therapy is deprecated.

3. Evidence is marshalled that B-complex factors (*i.e.*, thiamine hydrochloride, niacin, riboflavin, pyridoxine, pantothenic acid, biotin, para-amino-benzoic acid, choline) are unnecessary, if not harmful, in the treatment of anæmias.

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CLINICAL INTERPRETATION OF 'INCIDENTS' WITH EOSINOPHILIA

ASOKE KUMAR MITRA, M.B. (CAL.),

Registrar, Medical Division, Lake Medical College Hospitals, Calcutta

INTRODUCTION

The coarsely granular eosinophil cells constitute only 1 to 4 per cent (absolute figure 150-400 per c.mm.) of the total leucocyte count. But eosinophilia is an interesting hæmatological feature in diverse pathological phenomena and correct clinical interpretation often baffles the most astute clinician, because in eosinophilia " we are confronted with peculiar white cells, the origin of which is not known and whose function and ultimate purpose have not been clearly defined " (Ratner, 1943).

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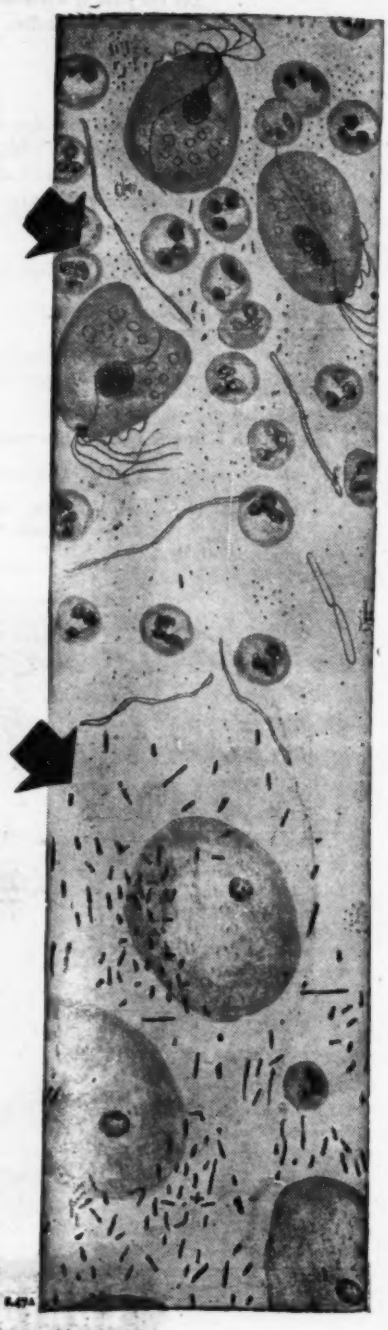

Literature and further information from the Medical Information Dept.

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on the connecting strands of chromatin), the nucleus stains pale purplish blue with Wright's stain, plentiful cytoplasm is studded with numerous uniformly large, coarse, crimson red oval or round granules.

There is little doubt about its origin from myeloblast—the totipotent cell of the myeloid group, but some controversy exists about the formation of acidophilic granules. The older theory that the neutrophilic particles are transformed into eosinophilic granules has gone out of recognition, similarly the proposition that these " granules are composed of hæmoglobin or its dissociation products, which are taken up by non-granular cells and deposited in granular form," is discarded. To-day we know for certain that eosinophilic leucocytes are derived from specific bone marrow cells (myelocytes). The eosinophil cell, though amœboid, is less active and slower than the neutrophils, phagocytic power is the least, granules contain much histamine and the cytoplasm exhibit proteolytic enzyme.

The life of an eosinophil cell is rather long (8 to 12 days) when compared with the shortlived neutrophils (2 to 4 days).

The normal figure of eosinophils has not yet been agreed upon and the number above which the condition should be called eosinophilia is arbitrary and different authors quote diverse figures—

Wintrobe:	...	...	above	2·5%	or 250	cells per c.mm.	
Whitby and Britton:			,,	4%	or 400	,, ,,	,,
Ratner:	Adults	...	,,	3%	or 300	,, ,,	,,
	Children	...	,,	6%	or 600	,, ,,	,,
French:	...	...	,,	5%	or 500	,, ,,	,,
Rudd:	Male	...	,,	2·2%	or 200	,, ,,	,,
	Female	...	,,	2·4%	or 240	,, ,,	,,

The normal variations of eosinophil count have been exhaustively studied by Finn Rudd (1950) of Oslo. All varieties of dry counting of stained smears have been proved to be ' hopelessly inaccurate.' Rudd devised the ' wet technique ' where eosinophils are counted directly in a hæmocytometer. Rudd uses Magdala Red in place of eosin, acetone is added to destroy the red cells.

It has been demonstrated that the eosinophil count of a normal person shows a wide degree of variation in 24 hours and from day to day. " During the day the average eosinophil count rises in the morning and afternoon to a maximum in the evening, and then falls again." Digestion produces no influence on this variation.

The following table justifies Rudd's remarks:—

EOSINOPHIL COUNTS IN NORMAL PERSONS TAKEN AT 10 A.M. AND 2 P.M.

Patient	*Eosinophils per c.mm.*		
	10 A.M.	*2 P.M.*	*Change*
Male 1 ...	... 131	56	−57%
Male 2 ...	... 38	75	+99%
Female 1 ...	... 363	106	−71%
Female 2 ...	... 213	350	+64%

It may be concluded that reasonably normal eosinophilic figure for an individual cannot be determined from a single count or from several successive counts on one occasion. " To minimise these spontaneous variations, Rudd proposes that four counts should be made at 15 minute intervals in the afternoons of each of 5 or 6 successive days, and the average of these 20-24 counts will fairly represent the normal level. Even then the range of variation within the ' normal ' is large." It has been shown by Rudd that " 126 eosinophils per c.mm. as the mean count for absolutely normal persons." He then calculates that counts from 40 to 228 per c.mm. should be regarded as the normal range for males and 42 to 245 per c.mm. for females. " In other words, at this level, reductions of less than 68 per cent are not significant and normal increases of up to 80 per cent must be reckoned with."

We consider the figure 5 per cent and above as the discriminating line where eosinophilia exhibits some pathological significance. In clinical practice the degree of eosinophilia can be roughly estimated by four broad groups:

A. Mild—over 5% to 10%.
B. Moderate—over 10% to 20%.
C. Marked—over 20% to 40%.
D. Extreme—over 40%.

CLASSIFICATION

An effort is being made to classify eosinophilia on this basis:

MILD AND MODERATE EOSINOPHILIA:

1. *Allergic disorders*—bronchial asthma, urticaria, hay fever, allergic rhinitis, angioneurotic œdema, food sensitivity, Henoch's purpura, tuberculin reaction, antibacterial immunization.

2. *Acute infections and convalescent phases*—acute rheumatic fever, chorea, measles, varicella, gonorrhœa, erythema multiforme.

3. *Diseases of the hæmopoietic system*—chronic myeloid leukæmia, eosinophilic leukæmia, erythræmia, pernicious anæmia, Hodgkin's disease.

4. *Certain bone conditions*—rickets, osteomyelitis, osteomalacia, malignant (sarcomatous) infiltration, Paget's disease.

5. *Neoplastic conditions*—tumours of ovary, malignant infiltration (carcinoma, lymphosarcoma) in

bones and peretoneal surfaces, during necrosis of tumour tissue.

6. *Certain inorganic and organic poisons,* drugs and biological preparations, (*vide infra*).

7. *Miscellaneous conditions*—following irradiation, periarteritis nodosa, extensive caseous tuberculosis of lymph nodes, Addison's disease, ulcerative colitis, after splenectomy.

MARKED OR EXTREME EOSINOPHILIA:

8. *Parasitic infestation* (*a*) marked and extreme—trichinosis, hydatid disease, schistosomiasis, (*b*) Moderate—ascariasis, hookworm disease, dibothriocephalus latus infection, tænia solium, filariasis, uncinaria, strongyloides infection, (*c*) *Variable and uncertain*—malaria, amœbiasis, infection with oxyuris vermicularis, trichocephalus trichuris, pediculosis (capitis, pubis, corporis).

9. *Skin diseases*—(*a*) marked and extreme—pemphigus, dermatitis herpetiformis, (*b*) moderate—exfoliative dermatitis, pruritus, prurigo, psoriasis, eczema, dermatitis venenata, ichthyosis, mycosis fungoides, pityriasis rubra, scabies.

10. *"Idiopathic" Eosinophilia*—
(*a*) familial eosinophilia,
(*b*) tropical eosinophilia,
(*c*) Loeffler's syndrome.

11. *Tissue Eosinophilia.*

CLINICAL EVALUATION OF EOSINOPHILIA

1. *Allergic disorders*—Bronchial asthma may show eosinophilia ranging from 4 (normal) to 20 per cent, higher count to be taken with certain amount of suspicion and further investigation is necessary to exclude associated parasitism or even an attack of 'tropical eosinophilia.'

Eosinophils are usually plentiful in the sputa, nasal secretions and skin wheals of allergic patients.

Charcot-Leyden crystals found in the sputa of chronic asthmatics are regarded as coagulation or crystallization products of eosinophils, these crystals are frequently found in stools containing entamœbæ, probably the chemical link with eosinophils make their presence felt in diverse disorders associated with eosinophilia, *e.g.*, leukæmic blood, smears from periarteritis nodosa, trichiniasis, and localised eosinophilic aggregations in nasal polypi and skin blebs.

In a fatal case of bronchial asthma tremendous eosinophilic infiltration was found in bone marrow and myocardium. (Chafee *et al.*, 1942).

Conjunctival smears and nasal secretions from cases of vasomotor rhinitis contain plenty of eosinophils (Walsh and Lindsay, 1933).

In angioneurotic œdema there may be high leucocytosis (44,000 per c.mm.) with marked eosinophilia (27-85 per cent) (Miller and Pepper, 1916).

Moderate degree of eosinophilia develop during positive stage of tuberculin reaction.

Antibacterial immunization is followed by a certain degree of eosinophilia and "if the cells disappear from the blood, treatment should be suspended until they return." (Whitby and Britton, 1940).

The degree of eosinophilia has no direct clinical bearing on the severity of allergic phenomena and the relief of allergic signs and symptoms in a patient is not always followed by diminution of eosinophilic count.

2. *Acute infections and convalescent phases*—In the infectious processes with polymorphonuclear neutrophilia (*e.g.*, coccal infection) an associated eosinopenia occurs, the eosinophils are either greatly reduced in number or disappear entirely, this phenomenon is known as 'Simon's septic factor,' in such cases, recovery is heralded by eosinophilia.

In the acute stages of rheumatic fever, scarlet fever, and chorea a slight or moderate degree (10-25 per cent) of eosinophilia may be observed. A case of rheumatic pleurisy showed 14 per cent acidophil cells on admission, this came down to 6 per cent after subsidence of the pleural involvement (Mukherjee and Mitra, 1950). Fridman and Holtz (1935) hold opposite opinion and state that "an eosinophilia in acute rheumatism is presented only during the period of recovery."

In gonorrhœa moderate eosinophilia is noted when posterior urethra, epididymis or prostate is involved, the early gonorrhœal discharges also contain large number of eosinophils.

Individuals convalescing from acute fevers develop mild degree of eosinophilia (5-10 per cent).

3. *Diseases of the hæmopoietic system*—Eosinophil cells may be numerous in chronic myeloid leukæmia; this increase includes both the granulocytes and myelocytes.

Eosinophilic leukæmia; a number of cases have been recorded (Paviot, Levrat and Guichard, 1935) where high degree of eosinophilia (60 per cent to 85 per cent of 20,000 to 80,000 cells per c.mm.) constituted mainly of fully mature acidophilic granulocytes, these granules are, however, much larger than the normal cells with scattered unstained spaces in the cytoplasm appearing as vacuoles. Splenomegaly is a constant feature, there may be associated hepatomegaly and lymphadenopathy, all these organs are infiltrated with mature eosinophils, such massive collections in iliopsoas muscle was noted in one case (Drennan and Biggart, 1930).

Hepatic cells contain Charcot-Leyden crystals and so also the eosinophil cells when a tube of blood is stored.

Hyperplastic bone marrow present eosinophilic infiltration.

In erythræmia (polycythæmia vera) occasional moderate eosinophilia is being demonstrated.

In pernicious anæmia eosinophilia is an inconstant feature, in fact acidophil count may be diminished. Some degree of eosinophilia may be noted after ingestion of raw liver but may be seen following cooked liver, liver extract or stomach therapy (Wintrobe, 1949), on the other hand considerable eosinophilia (15-28 per cent) has been observed in pernicious anæmia cases prior to the introduction of liver therapy.

Whitby (*loc. cit.*) maintains that eosinophilia is observed only after ingestion of raw liver and not after parenteral liver therapy.

We in the Lake Medical College Hospitals failed to note any remarkable alteration in eosinophilic count after injection of liver extract. In Hodgkin's disease eosinophilia is not a first rate diagnostic feature, it is found in moderate degrees only in 15 per cent to 20 per cent of cases, where the cells contain granules larger than normal. In rare instances high acidophilia (90 per cent) was recorded (Sears, 1932).

Occasional eosinophilia may be noted in cases of sickle cell anæmia (Wintrobe, 1949).

4. *Certain bone conditions*—In certain pathological involvement of cancellous tissue, mild or moderate degree of eosinophilia may be observed, *e.g.*, rickets, osteomalacia, sarcomatous infiltrations in bones and Paget's disease.

5. *Neoblastic conditions*—Mild or moderate degree of eosinophilia is noted in ovarian tumours, malignant metastasis in bones, in peritoneum and during degeneration of a tumour mass.

6. *Inorganic and organic poisons, drugs and biological preparations*—These agents inconstantly produce mild or moderate eosinophilia, *e.g.*, copper sulphate, phosphorus, sulphuretted hydrogen, camphor, pilocarpin, mercury, arsenic, acetanilid, sodium salicylate and digitalis.

Nirvanol, emetine hydrochloride and liver extract require special consideration.

Eosinophilia in a case of rheumatism (with or without carditis) may be partially due to the effects of therapy with salicylates and/or digitalis. "Nirvanol, a barbituric acid derivative used in the treatment of chorea, may lead to 'Nirvanol sickness' characterised by fever and an exanthematous rash with pronounced eosinophilia." It has been observed that urine shows alkaline reaction during the latent phase of the disease, but becomes acidic as the cutaneous manifestations and eosinophilia become evident (De Rudder and Whitaker).

Amœbic dysentery when treated with emetine hydrochloride is not always followed by the development of eosinophilia, "but in some cases, when eosinophilia was not present previous to the treatment, the eosinophil corpuscles have risen to 8 per cent after it, and this figure is sometimes exceeded, even 40 per cent having been recorded" (French, 1948).

Effect of liver therapy on eosinophilic count has already been discussed and needs no repetition.

7. *Miscellaneous conditions*—In clinical practice diverse and heterogeneous incidents show mild or moderate eosinophilia in circulating blood, *e.g.*, following irradiation—x-ray or radium—this is probably a response to cellular destruction by the penetrating rays; following extensive caseous tuberculous lymph glands, sometimes in cases with Addison's disease or ulcerative colitis.

A few weeks after splenectomy there is generally mild or moderate eosinophilia (10 per cent), this is probably a compensatory phenomenon and heralds the removal of an inhibitory agent, injection of splenic extracts cause a considerable diminution of eosinophils.

8. *Parasitic infestation*—The tissue-invading parasites cause the most pronounced eosinophilia.

Trichinosis or infection with trichinella spiralis stimulates high eosinophilic count, values as high as 60 per cent to 85 per cent have been recorded, the highest count is noted during the acute stage and within 2 to 3 weeks after infection, it lasts as long as 6 months to several years. In severely infected and debilitated individuals with marked gastrointestinal symptoms a low eosinophilic count suggests an unfavourable prognosis.

In hydatid disease or infection with echinococcus granulosus eosinophilia as high as 50 per cent is common and more likely when a live parasite is harboured. "Eosinophilia will depend on there being some seepage of hydatid fluid through the cyst wall," and high acidophilia is expected in the most active cases. Sudden rupture of the cyst wall (spontaneous or due to interference) is accompanied by sharp elevation of the eosinophilic count; with suppuration, eosinophilia is replaced by neutrophilia. With the death of the cyst or calcification or dense fibrous tissue formation eosinophilia is markedly reduced, the Casoni skin test and complement fixation test become negative.

In schistosomiasis (infection with *S. hæmatobium, S. mansoni, S. japonicum*) marked eosinophilia (60 per cent) is observed during the incubation period and in the early stages, this happens after a month of infection when the larvæ invade the portal vessels and excrete toxic (and allergic) metabolites into the system. In the second stage with the development of anæmia eosinophilia becomes less marked and certain degree of polymorphopenia is evident. With severe anæmia there may be profound diminution or complete absence of eosinophils, but with secondary bacterial infection neutrophilia attains a dominant feature in the blood picture.

In intestinal helminthic infection like ascariasis, hookworm disease, dibothriocephalus latus, uncinaria, strongyloides or tænia solium infections slight or moderate degree of eosinophilia may be noted, but this is no measure for the severity of the infection.

Eosinophilia though frequently present in filariasis " is too inconstant a finding to be of either positive or negative value."

Napier (1946) in a series of 53 cases of filariasis demonstrated the myelograms showing " normal percentages for all the blood elements, the low percentage of eosinophil myelocyte in cases in which there is an increase in blood eosinophils suggests an extramedullary origin for the latter." Moderate degree of eosinophilia is common in cases without any evidence of lymphatic block and having positive nocturnal blood smear. During an acute attack of filarial lymphangitis eosinophils are markedly diminished or completely absent from peripheral blood, a marked neutrophilia may be the outstanding picture instead.

Eosinophilia is rather inconstant in systemic protozoal infections *e.g.*, malaria, kala-azar. In a case of B.T. malaria with repeated pronounced urticaria—eosinophil count remained constant at normal average. (Mukherjee and Mitra).

In majority cases of kala-azar almost complete eosinopenia is a conspicuous feature. In a series of 50 cases with kala-azar (in Lake Medical College Hospital) only 6 per cent (3 cases) showed eosinophil count ranging from 1 per cent to 2 per cent.

9. *Skin Diseases*—Highest and constant eosinophilia (25 per cent to 50 per cent) is noted in pemphigus, dermatitis herpetiformis; moderate eosinophilia is a feature in exfoliative dermatitis, pruritus, prurigo, eczema, dermatitis venenata, ichthyosis, mycosis fungoides, pityriasis rubra and scabies.

10. *'Idiopathic' Eosinophilia*—In these conditions marked eosinophilia is the predominant hæmatological picture but the etiology remains obscure. Under this subtitle we propose to discuss:—

(*a*) Familial Eosinophilia.
(*b*) Loeffler's Syndrome.
(*c*) Tropical Eosinophilia.

(a) *Familial Eosinophilia*: This rare condition was first described by Klinkert (1911) and supported by many (Armand-Delille, Hurst, Sorapure, Stewart—quoted by Whitby, 1946). The phenomenon has been observed in the majority members of several families, all possible causes stimulating eosinophilia have been excluded. " It has, therefore, been suggested that these represented a familial anomaly."

(b) *Loeffler's Syndrome*: Transitory lung infiltrations of unknown etiology make the presenting feature, the syndrome being especially noted in children from the dry climates of Europe and Middle East. The clinical picture is characterised by mild bronchitis, dyspnœa and fever, there is no splenic enlargement. Price ascribes this condition in some cases due to " migration of larvæ of ascaris through the lungs."

(*c*) *Tropical Eosinophilia* (Weingarten's syndrome, eosinophilic pneumonitis): This is a similar condition and found in the humid seaside districts of India, Ceylon and South Pacific areas. The syndrome starts insidiously with malaise, asthenia, loss of weight, low grade pyrexia and paroxysmal asthmatic attacks. There is leucocytosis with high eosinophilia (50 per cent to 60 per cent). Splenomegaly is an occasional feature. " Rœntgenograms reveal diffuse bilateral mottlings of the lung fields " closely simulating acute miliary tuberculosis, the average single focus being the size of a split pea. In the latter stages when fever subsides but coughing and wheezing persist, the skiagram shows " increased bronchial markings " resembling chronic bronchitis.

It has been suggested that the syndrome may be initiated by sensitisation to intestinal parasites like ascaris or ankylostoma or actual invasion of the lung tissue by certain mites (Tyroglyphus and Carpoglyphus) which were discovered in the sputa of some individuals with marked eosinophilia (Manson-Bahr, 1945).

11. *Tissue Eosinophilia*: A tissue eosinophilia may not often be associated with blood eosinophilia, but in the majority of allergic states bone marrow smears demonstrate increased production of eosinophil cells. The local aggregation of eosinophils at the site of injection of foreign protein is now accepted as the typical histopathology of allergy.

In vernal conjunctivitis or spring catarrh (allergic) the hard flat-topped nodules in the upper palpebral conjunctivæ contain eosinophil leucocytes in great numbers (Parsons, 1948).

" Eosinophilia occurs in the vicinity of malignant tumours and marked reactions are noted in the lymph nodes affected by Hodgkin's disease."

Eosinophilic infiltrations become manifest in the latter stages of many inflammatory conditions, as in healing appendicitis, salpingitis and peptic ulcers.

In allergic individuals collections of eosinophils have been noted in sinusal mucous membrane, nasal passages, respiratory tree, alimentary canal and typical skin lesions. It has been asserted that " a smear of nasal or bronchial secretion showing 10 per cent eosinophils or more is diagnostic of allergy." (Cohen and Rudolph, 1931).

Transitory eosinophilic pulmonary infiltrations have been demonstrated in ascariasis, trichinosis, pulmonary amœbiasis, tuberculosis, melitensis, pollinosis and asthmatic conditions.

In Hand-Schuller-Christian's disease, the aggregation of lipid-containing cells are found in association with eosinophils and giant cells, there is also destruction of bones resembling granulomatous mass often termed " eosinophilic granuloma " (Kimpton, 1948).

Collections of eosinophils have been observed around blocked venules and lymphatics by eggs of schistosoma and adult filarial worms respectively.

In periarteritis nodosa (or polyarteritis nodosa) the infiltration of vascular walls with eosinophil cells present a characteristic but inconstant feature (Price, 1947).

Recently Lumb (1950) described a fatal case where "diffuse eosinophilic arteritis" made a remarkable picture, the visceras like heart, lungs, spleen, liver, kidneys, lymph nodes and lacrimal glands showed profuse eosinophilic collections.

In leukæmia eosinophilic infiltrations in various organs have already been noted. Presence of eosinophils in secretions of allergic patients needs no repetition, acidophil cells may also be found in hæmorrhagic pleural fluids, in intestinal blood and mucus from cases with bacillary dysentery. Exudates of small-pox pustules contain eosinophils.

Effect of A.C.T.H. on Eosinophilic Count

"Eosinophil count have come into prominence lately because it has been found that administration of pituitary adrenocorticotropic hormone (A.C.T.H.) reduces the number of eosinophils in the peripheral blood. The A.C.T.H. acts by stimulating the adrenal cortex to secrete corticosterone, so theoretically, the eosinopenia after giving A.C.T.H. could be used as an indicator of adrenocortical function." Recently Prunty (1950) reviewed the position of A.C.T.H. for estimation of adrenocortical function (in relation to depression of eosinophilic count) in subjects with endocrine disorders. Prunty carried on "Four hour" and "Forty-eight hour A.C.T.H. Test" after injecting single dose of 25 mgm. A.C.T.H. or six-hourly doses of 10 mgm. A.C.T.H. (Total 80 mgm.) and making eosinophil counts immediately before (the first injection) and after 4 hours and 48 hours respectively.

It has been demonstrated that there is a fall in the eosinophils of 50-98 per cent (average 75 per cent) in normal individuals; in Addison's disease the range was from + 12 per cent to − 8 per cent; three patients suffering from Simmonds' hypopituitarism produced results +24 per cent, −4 per cent and −17 per cent; lastly, in four patients with chromophobe adenoma of the pituitary the count varied from −15 per cent to −45 per cent.

Cause and "Mechanism" of Eosinophilia

"The most widely held view is that the presence of foreign protein is the specific factor causing eosinophilia, and a role of detoxication of these proteins has been attributed to eosinophils."

The phenomenon is evidently an allergic response and not due to the foreign protein *per se* because the reaction is shown after repeated injections and following considerable latent period, a local eosinophilia is noted at the site of introduction.

Histamine plays a big role in the production of symptoms of allergy and in man the eosinophils are the richest depot of blood histamine (Code, 1937 and 1939). Thus eosinophilia can no longer be regarded as the passive accompaniment of allergic reaction but an active agent for causing allergic response. Probably an 'antibody' (produced by repeated introduction of an antigen in a sensitised individual) is the main chemotactic and stimulating agent. Bunting (1932) stated that products of lymphocytic disintegration exert chemotactic attraction for eosinophils and lymphocytes contain much antibodies (Ehrich, Harris, Kass—quoted in *Lancet*, 1949). The eosinophilia in Hodgkins disease may be due to lymphocytic destruction, the eosinophilia in malignancy may be an example of chemotactic response to protein materials from enormous tissue degeneration.

The high incidence of eosinophilia noted in young children is explained on the basis of allergic phenomenon due to introduction of new foods. Berger (1916) observed that when a newer protein was introduced into an infant's diet eosinophilia became evident within 9 to 12 days after ingestion and returning to normal after a few weeks. This phenomenon has been explained by cutaneous tests (Hill, 1942) showing antibodies being produced in infants after ingestion of foreign proteins (antigen), this antibody titre gradually diminishes after protracted administration of one particular brand of protein. The antibody titre of patients with intestinal parasitism is generally markedly high and such individuals show obvious eosinophilia.

Bone marrow eosinophilia runs parallel with the blood stream eosinophilia. The post-febrile eosinophilia is the product of stimulated bone marrow from protein materials of inflammatory process, this is likely to be an allergic phenomenon. So long the acute toxic stage lasts, eosinophil production is depressed and in almost all conditions accompanied by neutrophilia there is associated eosinopenia (Simon's Septic Factor).

Eosinophilia is fairly common in pulmonary tuberculosis, especially when an artificial pneumothorax is induced there follows slight pleural effusion rich with eosinophils and within a few hours blood shows marked eosinophilia, this allergic reaction predicts good prognosis.

The eosinophilia following drug administration may reasonably be explained by assuming that "the drug first of all affects the protein tissues and liberates a breakdown product."

The degree of eosinophilia is no yardstick in measuring the clinical state of a patient (*i.e.*, the degree of allergy or hypersensitiveness), but on the other hand Mayer and Noncorps (1926) produced definite hypoeosinophilia by repeated injections of methyl alcoholic splenic extract and this was found to be of therapeutic value in skin disorders and in prevention of anaphylactic reactions.

In spite of a plethora of academic speculations on eosinophilia we may conclude by quoting Ratner—"while it is not known how or why eosinophils are formed, we do know that when they are present, it indicates that some foreign substance has invaded the body, even though at the time we are unable to determine what the substance is."

The following table shows the analysis of 316 cases (collected from medical in-patient and out-patient departments of the Lake Medical College Hospital, Calcutta), illustrating the broad disease groups where eosinophilia heralds some clinical significance.

TABLE—SHOWING ANALYSIS OF 316 CASES WITH EOSINOPHILIA

No.	Disease	No. of cases	Average age group (years)	Sex Incidence Male	Female	Diff. Eosino. Count (%) Max. %	Min. %	Average %
1.	Rheumatic carditis	12	22·6	8	4	30	8	13·1
2.	Congenital heart disease	6	12·8	5	1	15	5	7·8
3.	Cor pulmonale	3	52·1	3	0	12	5	8·8
4	Essential hypertension	12	53·4	10	2	20	5	12·4
5.	Tabes mesenterica	5	24·2	2	3	15	8	13·2
6.	Pleural effusion (TB)	12	26·6	10	2	18	6	10·4
7.	Pulm. fibrosis (TB)	16	28·7	14	2	14	5	10·2
8.	Pul. tuberculosis (Fibro-caseous) ...	12	30·2	9	3	16	5	10·1
9.	Peptic ulcer							
	Acute—before therapy	20	26·4	16	4	10	5	6·4
	Healing—after therapy	16	,,	12	4	15	8	10·4
10.	Trop. eosinophilia							
	Pre-arsenic	24	23·8	20	4	78	24	48·6
	Post-arsenic	20	,,	17	3	42	8	18·4
11.	Allergic asthma	20	27·7	13	7	22	11	14·3
12.	Allergic rhinitis	24	25·5	21	3	30	8	15·2
13.	Angioneurotic œdema	2	21·4	0	2	26	21	23·5
14.	Infective hepatitis	8	31·7	6	2	22	8	13·3
15.	Acute nephritis	16	16·2	13	3	15	5	8·4
16.	Subacute nephritis	14	23·5	9	5	18	5	10·7
17.	Amœbic hepatitis	10	26·6	8	2	14	5	8·8
18.	Ankylostomiasis (with anæmia and œdema)	16	28·2	14	2	26	8	18·6
19.	Ascariasis	14	26·0	10	4	16	8	12·4
20.	Giardiasis	10	10·5	5	5	14	6	11·2
21.	Mixed helminthic infection (Ankylo & Asc. etc.)	12	22·6	8	4	20	8	12·8
22.	Ch. amœbiasis	16	28·5	12	4	16	5	7·8
23.	Filariasis	16	31·2	13	3	24	8	12·8
24.	Non-specific diarrhœa	8	13·4	6	2	18	8	12·3
25.	Rheumatoid arthritis	4	24·4	1	3	18	14	16·0
26.	Enteric fever (4th—5th weeks) ...	11	21·6	9	2	12	5	8·6
27.	Hodgkin's disease	3	12·8	3	0	16	12	14·0

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PRACTITIONERS' CORNER

RECENT ADVANCES IN OPHTHALMOLOGY

MOHANLAL,
Chief Medical Officer, Gandhi Eye Hospital, Aligarh

By recent advances is meant the revolution that has taken place in ophthalmology as regards diagnosis and therapy in the past 25 years. This is of course closely connected with the advance of medicine as a whole during this period; our perspective would be incorrect if we tried to isolate it.

Unfortunately, our country has so far contributed very little to the modern advance of medicine as a whole and ophthalmology in particular. The main reason for this lag, is that it is only very recently that ophthalmology is being dealt with more and more by specialists rather than general practitioners. In the past, ophthalmic practice was mostly confined to operations of cataract, glaucoma, entropion and sac or the treatment of trachoma and its complications. However, more attention is being given at present to this special subject and large eye hospitals and institutions at Bombay, Calcutta and Madras are providing materials and facilities for research and experimentation. An attempt in this direction is also being made in our Province. The subject is discussed under the two headings of diagnostic procedures and therapeutics.

A. DIAGNOSTIC PROCEDURES

1. *Perimetry*—Neuro-ophthalmology is now a well-advanced branch of medicine in Europe and U.S.A. and much research has been recently done on the anatomy and physiology of the nervous system. It is extremely common for a case of some brain lesion to first approach the ophthalmologist with eye-symptoms. Diagnostic examination of such a case, therefore, begins in the eye clinic. Cushing appears to have been the first neurosurgeon to realise the importance of the field of vision in relation to brain lesions. In the words of Norman Dott* " The ophthalmoscope is a great gift from ophthalmology to neurology.....the perimeter is, I believe, an even greater gift from the sister science to neurology. Although it had been offered earlier than the ophthalmoscope, the neurologists were very slow in accepting it."

Perimetry, therefore, has its place in every ophthalmic and neurosurgical unit to-day. Perimeters of every type are available, from the simplest hand perimeter without any automatic recording arrangement, to the modern Goldmann's perimeter, and each type has its particular uses. Goldmann's perimeter, designed in Switzerland is the most complicated and expensive of all. It is entirely automatic and the object is a spot of light which is thrown on to the spherical arc. The intensity and size of the object can be accurately controlled and the instrument can detect very minute changes in the field outline. Apart from peripheral fields, it is important to study the blind spot, and for this, Bjerrum Screen test is the standard and familiar procedure. Amsler's charts recently devised for detecting and charting macular defects are a step forward. Finally, angioscotometry is a valuable diagnostic procedure. This implies measurement of a field defect associated with the blood vessels emerging from the optic disc. A special chart and apparatus are employed for plotting it. The angioscotoma shows physiological and pathological variations proportionate to the condition of the blood vessels. For example, angioscotometry is the only method which can detect dissemimated sclerosis in its earliest stages. It may be

* Foreword to Traquair's An Introduction to Clinical Perimetry, 5th edition.

mentioned that in these early conditions, fundus and visual acuity may be normal.

2. *Ophthalmodynamometry*—The sclera is compressed with a special instrument called Bailliart's ophthalmodynamometer. Slight mydriasis is necessary.

With direct or indirect ophthalmoscopy the central artery is observed while pressure is gradually increased. The first arterial beat indicates the diastolic pressure. The reading is taken on the instrument. Scleral pressure is increased, and the last beat indicates the systolic pressure.

This is an important advancement in our study of the state of blood vessels of the eye and the brain. It enables to determine retinal arterial pressure in patients with cardiovascular disorders, and intracranial circulatory disturbance. The uses of this method are in

(*i*) Glaucoma, with or without general hypertension.

(*ii*) Tabetic optic atrophy.

(*iii*) Retrobulbar neuritis, and so on.

3. *Slit-lamp microscopy*—This provides a method for a highly magnified view of the transparent structures of the eye. There is a strong oblique beam of light regulated by a 'slit' and viewed with binocular corneal microscope. The method was first elaborated and studied by Prof. Vogt of Zurich and his is the most valuable contribution to it.

Prof. Goldmann of Bern has recently designed a very compact and neat type of slit lamp, which is easier to handle than the older models. He has also devised a special contact lens, which when used with the slit lamp enables one to study the angle of the anterior chamber. Gonioscopy is the term for examination of the angle, and previously an elaborate apparatus had been devised for this purpose by Troncoso. The special contact lens of Goldmann has simplified matters.

Similarly, Goldmann has put the binocular electric ophthalmoscope out of date. He has devised a special contact lens and prism which enable a binocular examination of the fundus with the slit lamp. This gives stereoscopic view of the fundus.

4. *Photography*—Stereoscopic photography of slit lamp conditions and fundus photography in colour are specialised techniques, and are important for record and teaching.

Film in black and white colour, of operations etc., are widely used for under-graduates and post-graduate teaching, because the field of operation is so small in ophthalmology that spectators seldom get a correct idea of operations in the theatre. New techniques and instruments are also well demonstrated in this way in conferences and society meetings. Photography leads to exactness in tracing the progress of small lesions, where memory and diagrams are often inaccurate. It should no longer be treated as a luxury.

5. *Refraction*—Although the principles of refraction remain the same, there is a tendency towards centralisation of procedure, avoiding frequent changing of the patient's place of examination and the consequent disturbances.

Keratometers and ophthalmometers of various types are being frequently used in Europe for objectively measuring the corneal astigmatism and accurately determining the axis.

Recently Fincham has devised an instrument for objective assessment of the total refraction state of the eye, including amount and axis of astigmatic error. This instrument is called the optometer, and its more extensive use will greatly revolutionise our conceptions of the procedure of refraction.

6. *Orthoptics*—This is a newly developed branch of ophthalmology. It implies the study of the state of binocular vision, and treatment of the defects. Subjects dealt with are generally children, and they are commonly brought for treatment of squint of different types.

Many methods have been devised for accurate measurement of the squint, and the most important instrument is the synoptophore.

This is a diagnostic as well as a therapeutic instrument: the angle of squint is measured, and in suitable cases exercises are given to increase fusion faculty, to overcome suppression and so on. Latent squint or heterophoria is also diagnosed and treated by orthoptics, and this science is gaining importance every day.

B. Therapeutics

This field is very vast and only a few important items of general interest are being taken up.

1. *Keratoplasty, or corneal grafting*—This has been developed by Filatov, Castroveijo, Franceschetti and others. Square and circular transplants are used and both are found to have their advantages and disadvantages. Most authors claim about 50 per cent success in grafted cases, though some give higher figures. Improvement in vision in successful cases is remarkable sometimes from hand-movements to 6/18.

The donor material is generally taken from cadavers and is difficult to obtain in this country; here we require the co-operation of physicians and general practitioners as well as the authorities to enable us to do this excellent work.

Recently it has been found that the grafting material has a clearing effect on the surrounding opaque cornea. Lamellar grafting, which does not extend through the whole thickness of the cornea is now being used because it has less attendant dangers than penetrating keratoplasty.

2. *Contact lenses*—This is a science in itself and requires much specialised skill for moulding and fitting. Contact lenses for cosmetic purposes alone are now being discouraged, because of the difficulty of fitting

and toleration, and the expense. Therapeutic uses of contact lenses in corneal opacities, dystrophies and mustard-gas keratitis are now well-established. As described in the section on slit lamp, there is now an important diagnostic use for them as well.

3. *Tissue therapy*—Grafting of placental tissue under the conjunctiva which was first reported by Filatov is being extensively tried in eye conditions; opinions vary about the success of this and it is in the experimental stage.

4. *Detachment of the retina*—The principles of the operation for detachment are the same as they were since Gonin first devised it, but details of procedure vary even to day from clinic to clinic.

Careful localisation and charting of the hole is very important. Diathermy coagulation is used to seal the edges of the hole, and the subretinal fluid is withdrawn. The results of this operation are good, in carefully selected cases, if they are taken up early.

5. *Reconstructive and squint surgery*—With the co-operation and help of plastic surgeon, reconstructive surgery of the eyelids, and sockets have advanced by leaps and bounds in recent years. Ptosis and entropion operations have undergone many modifications, and the latest techniques are very satisfactory.

Reconstruction of socket and fitting of artificial eye are among the most important recent developments which called for much research and experimentation. The artificial eyes are now mostly made of plastic, and fit into a special tantalum implant to which the recti muscles are sutured. This gives the artifical eye satisfactory mobility.

Similarly surgery in combination with orthoptics has led to very good cosmetic and functional results in squint cases.

In close association with E.N.T. surgeons the operation of dacryocystorhinostomy has been worked out. This has solved many of the problems of sac surgery.

6. *X-ray, radium and ultra-violet therapy*—Superficial and deep x-ray therapy is being more widely used with success in eye cases which do not respond to ordinary methods of treatment. This is specially the case with some types of corneal ulcers and keratitis.

Radium in the form of radon seeds is being used in cases of hæmangiomatosis retinæ and other malignant tumours of the eye.

Ultra-violet ray therapy has an important use in phlyctenular lesions.

In conclusion, I may say once again that this paper by no means covers the whole field of recent advances in ophthalmology but I am limited by lack of time. I have not even touched on subjects such as industrial ophthalmology which is gaining importance every day. Neither have I dealt with chemotherapy with its fine array and vast number of recent drugs. Penicillin and sulphonamides constitute a part of the armamentarium of every modern eye clinic worth the name. Similarly, vitamins and hormones are coming into greater use every day, as are streptomycin and tuberculin. Most of these drugs are even to-day being further standardised for use in eye cases. Aureomycin in trachoma cases is under active consideration, and may revolutionise the treatment of a disease which has foiled attempts of ophthalmologists for thousands of years.

VIOFORM CREAM IN SKIN DISEASES

B. N. BANERJEE, M.B., M.R.C.P. (EDIN.),

Lecturer in Dermatology, R. G. Kar Medical College, Calcutta

In dermatology the treatment of chronic sycosis barbæ, sycosiform dermatitis and infective folliculitis is always a problem. Even in these days of antibiotics and x-ray therapy results are not always satisfactory. Recurrence is frequent, particularly during the summer days. Topical use of quinoline derivatives " ung. quinolor co." (Squibb) has been tried in these conditions for a number of years with varying results. It has in many cases given satisfactory results. The latest improvement in this line is the tropical use of vioform. Its chemical formula is 5-chloro-7-iodo-8-hydroxyquinoline. It is a greyish-yellow amorphous powder containing 41 per cent of organically bound iodine and 12 per cent chlorine. It is tasteless and insoluble in water, its melting point being 156°C. It is sensitive to light and moisture, both of which darken its colour. The use of vioform in the treatment of amœbiasis is well-known to all medical men, particularly in the tropics. Vioform as an antiseptic dusting powder has been known to the dermatologist for a long time, in fact it is said to be one of the best antiseptic, mildly soothing and antiparasitic medicines. How it acts is not very clearly known. The antiseptic action of vioform was thought to be due to the liberation of iodine and chlorine, but after proper investigation it has been found that free iodine plays very little or no part in its antiseptic action. Vioform is found to inhibit the growth of *Staphylococcus aureus* and *B. coli in vitro* in a dilution of 0·025 per cent and *Pseudomonas pyocyanea* in a dilution of 0·5 per cent.

Since the reports by Martin-Scott (1949) and James Overton (1949), I have tried vioform on a group of cases and the results obtained in these cases are given below. At the beginning I had to depend on ointments prepared out of the Entero-vioform tablets ground into powders and mixed up with sterile white petroleum jelly in 3 per cent strength. Later on I got a good amount of supplies of 3 per cent vioform cream in tubes and jars from Messrs. Ciba Pharma Limited.

Finally, when I used the drug in 5 per cent strength it was made out of powdered Entero-vioform tablets.

The majority were outdoor hospital cases and some of them were my private patients. Almost all the cases of sycosis and pustular folliculitis had some kind of treatment elsewhere with very little or no result. Cases on record here were strictly under treatment with only vioform cream and nothing else.

Assessment of Results—Full assessment of the results could not be made in all the cases because of the difficulties in following up the outdoor cases to the end. Very few were there to get the verdict of complete cure from us. Most of the results given here were noted after seeing visible improvement.

Results

1. *Sycosis Barbæ and Sycosiform Dermatitis*—These cases were mostly coccogenic and a small number was simply seborrhœic. In the tropics almost all cases of sycosis are found associated with seborrhœa oleosa. So both conditions are taken together. Out of 15 cases only 2 were without any previous treatment and these were acute cases. Duration of illness ranged from 1 to 10 years and recurrence was seen invariably during the summer seasons. They had all sorts of treatment with autovaccine, penicillin locally and parenterally and many other remedies but never got rid of the diseases completely. Twelve cases showed definite improvement and the period of observation was up to 3 months. Acute cases reacted more quickly and became free from the disease within 15 days. Along with the use of vioform cream attention was given to local sepsis, if there had been any seborrhœic condition with shampooing of the scalp, regulation of bowels and use of vitamin B-complex orally.

2. *Pustular Folliculitis*—56 cases were treated. All were chronic cases and the duration of illness was from 2 months to 10 years. All showed typical affection of the hair follicles. Many had a good amount of hypertrophy of the skin surrounding the follicles. Exacerbation of the condition was mostly seen during the summer and rainy seasons. Hairs were found intact in cases of recent origin, but in late chronic cases many follicles were devoid of hairs. The infection is taken as superficial because of the presence of hairs even when the pustular condition disappears, but it is invariably found that unless the hairs from the infected follicles are removed the disease recurs. It is because, possibly the infection lies deep in the follicles. Three types of cases were taken up for treatment: (1) Affection of the forearms only, (2) affection of the legs only and (3) extensive affection extending up to the thighs. Almost all cases had symmetrical distribution. They were treated as follows:—(*a*) Hot boric compress to the parts twice daily. (*b*) Picking of hairs from the pustular follicles with a pair of forceps as many as possible at a time. (*c*) Rubbing of vioform cream for 5 to 10 minutes at first with light pressure and then when habituated with firm pressure. Marked improvement* was noticed within a fortnight but in the majority of cases where hypertrophic condition of the skin was present, progress was found unsatisfactory. In these cases the strength of the cream was changed from 3 to 5 per cent and the desired result was obtained in 80 per cent of the cases within 2 to 3 months.

3. *Dermatitis of the Ears* (Streptococcal)—Eight cases were treated. All were children—age from a few months to 5 years. Five of them had running of pus from the ears. They were treated with hot boric compress twice daily and application of vioform cream twice daily. Condition was aggravated in 2; three had very rapid cures in 4 or 5 days and 3 showed very slow progress.

4. *Scabies*—18 cases of scabies complicated with secondary staphylococcal infection were treated with 3 per cent vioform cream. All were advised to clean the parts first with soap and water and then compress with hot boric cotton and apply the medicine by rubbing lightly twice daily. Secondary coccal infection disappeared within 5 or 6 days' time but it made no impression on the parasitic infection.

5. *Vesicular and Papular Eczema*—3 cases were treated with cold or hot Goulard compress two or three times daily, followed by the rubbing of vioform cream twice daily. All the cases improved—one showed very quick action, the other two were very slow in progress.

6. *Seborrhœic Dermatitis*—Number of cases treated—12, of which 3 had patches on the arm, face and upper part of the back and the rest had patches mostly on the body along with pityriasis capitis. Besides local application of vioform cream, they were advised regular shampoo of the scalp and bath with sulphur soap. Practically the seborrhœic patches disappeared within one week and the scalp condition improved markedly.

7. *Pityriasis Versicolor*—5 cases. They had applications of vioform cream twice daily over the affected parts but showed no appreciable change within 10 days.

8. *Fungus Infections*—(Tinea circinata, cruris and interdigitalis) 25 cases. All were Epidermophyton infections. Most of the cases of Tinea cruris and interdigitalis were in inflamed stages. All had an application of vioform cream twice daily and the inflammation subsided very quickly; the skin became clear of the infection in about 10 days' time. Tinea interdigitalis (12 cases) did not respond well with 3 per cent cream, except that the inflammation had decreas-

* It is difficult to assess the value of vioform in pustular folliculitis, as the author at the same time has pulled out the affected hairs with a pair of forceps. Hairs act like foreign bodies in the affected follicles and when these are depilated either by means of forceps or by x-rays, no other treatment is as a rule necessary—Ed., *J. Indian M. A.*

ed—it showed somewhat better results with 5 per cent cream.

9. *Neuro-Dermatitis*—3 cases. Two had patches of dermatitis on the legs and one on the forearm. The latter had some amount of superadded secondary infection and was moist. Vioform cream was rubbed at first lightly, then with pressure twice daily and in three weeks' time the surfaces became smooth and there was no itchiness. But it did not disappear completely. One of the patients could be followed up to 3 months. Though the patches were still there, no active lesions were visible and the patients were quite happy.

10. *Psoriasis*—Only one patient was treated with 3 per cent cream but with no good result.

11. *Chronic Granuloma (Pyogenicum)*—2 cases. One had a patch on the buttock and the other had one at the inguinal region. Both showed good results in a week's time. This is as regards the pyogenic condition, but it made no impression on the hypertrophic granulomatous condition.

TABLE OF RESULTS

No.	Diagnosis	Total no. of patients (148)	No. of patients affected by Vioform (111) Improved (109)	Aggravated (2)	No. of days within which the improvement noticed	No. of patients who showed no improvement or slow action	Remarks
A.	Sycosis Vulgaris and Sycosiform Dermatitis	15	12	Nil	15 days	3—very slow action	3-5% Cream used.
B.	Infective Folliculitis (Coccogenic) ...	56	43	,,	15 days to 2 months	13 cases—slow progress; after 3 months' appreciably good effects seen	3-5% Cream used.
C.	Dermatitis of the Ears	8	3	2	4 to 5 days	3—had slow progress ...	3% Cream used.
D.	Septic Scabies ...	18	18	Nil	5 to 6 days	.....	3%—made no impression on the infection.
E.	Vesicular and Papular Eczema	3	3	,,	2 had slow action	.....	3% Cream.
F.	Seborrhoic Dermatitis	12	12	,,	1 week	.....	3% Cream.
G.	Pityriasis Versicolor ...	5	Nil	,,	Observation for 10 days	.....	3% Cream.
H.	Fungus Infections ...	25	13	,,	10 days	12 cases—slow progress	3 to 5% Cream. —5% mainly required for T. interdigitalis.
I.	Neuro-Dermatitis ...	3	3	,,	3 weeks	Slow progress	No cure, only improvement noticed.
J.	Psoriasis	1	Nil	,,	...	One	.....
K.	Chronic Granuloma Pyogenicum ...	2	2	,,	1 week	.....	Pyogenic condition only cleared off.

SUMMARY AND CONCLUSION

Vioform cream 3-5 per cent alone was used for the treatment of 148 cases, casually selected from the cases attending the hospital.

The successful result was most marked in cases suffering from pyogenic infections of the skin and also in other conditions having superadded pyococcal infections. It is also found successful in some cases of fungal infection but not so marked or quick as in the former conditions. It has a remarkable antipruritic action. No pain or any untoward effect or sensitivity to the drug was noticed. It gives a slight smarting sensation at the beginning of application. It did not prove effective in pityriasis versicolor, parasitic infections, neurodermatitis, psoriasis and granuloma pyogenicum. The superiority of this drug in sycosis and pustular folliculitis over any other existing drugs and also that it is definitely an addition to medicaments used for pyococcal dermatoses have been clearly proved. Though the number of cases treated was not large, it gave me an opportunity of assessing its value to some extent.

ACKNOWLEDGMENT

I am indebted to Messrs. Ciba Pharma Limited, who very kindly supplied me with the drug.

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TREATMENT OF PREGNANCY ANAEMIAS WITH FOLIC ACID COMPOUND*

A. BENJAMIN ALLAN,

Lady Dufferin Hospital, Calcutta

A large number of clinical trials have been carried out on the action of folic acid both on animals and human beings. The discovery and synthesis of the vitamin in 1943 has enabled great progress to be made and has led to the conclusion that folic acid has great therapeutic value in the management of sprue and the megaloblastic anæmias.

The term folic acid is usually employed to designate synthetic pteroylglutamic acid and its naturally occurring conjugates. Most of the folic acid in food, consists of conjugates of higher molecular weight which the healthy individual is able to utilize. These conjugates are frequently** ineffective when administered to patients with megaloblastic anæmia. Pernicious anæmia patients, however, are able to break down conjugate folic acid during remissions induced by liver therapy (Heinle *et al.*, 1946 and Davidson, 1949). Evidence has accumulated to indicate that there is a biochemical defect in the utilization of the conjugates of folic acid. The anti-anæmic principle of the liver is concerned with the conversion of the conjugated vitamin to the free form (Davidson, 1949), the principle being necessary either for the proper functioning of a conjugase system or for the removal of inhibitors of that system (Wilkinson *et al.*, 1949). Davidson strongly supports the former theory.

Jacobson suggests that the liver factor may convert the folic acid to a reduced form. This " reduced form " exists in the citrovorum factor (Broquist *et al.*, 1950) which is related to or identical with the folinic acids synthesised by Shive and co-workers (1950) and to vitamin B14 (Morris, 1949). Folinic acid administered in doses of microgrammes produced a response equal to that of milligrammes of folic acid in anæmias of experimental monkey (May *et al.*, 1950).

Several papers have been published on the action of folic acid on the megaloblastic anæmias, the bulk of the work relates, however, to the synthetic form of the vitamin. Conjugate F.A.C. has been used in these trials, the compound is prepared from partially digested yeast which is finally mixed with liver concentrate so that each c.c. contains 0·5 mgm. folic acid, 0·6 mgm. of its conjugate and an extract from 15 gms. of liver.

The 15 patients reported on in these trials were cases of anæmia associated with pregnancy. The patients were given hospital diet which consisted of 1/2 seer of milk daily and two meals of rice, dal, vegetables and fish (2 oz.). Case No. 4 being a vegetarian was given an extra 1/2 seer of milk. Routine blood counts, Kahn tests, stool and urine examinations were done in each case. Marrow punctures were done in 9 of the 15 cases; there were no facilities for the estimation of blood proteins.

The annexed table shows blood pictures before and after F.A.C. therapy and again after treatment with iron. The usual daily dose of F.A.C. was 2 c.c. unless otherwise indicated, and the iron given was three tablets daily of either Bio-Ferettes or Fersolate. The reticulocyte response of each patient is shown and, the figure in brackets indicates the day on which the response was observed.

Case Reports

Case 1—S. B., a hindu, aged 20 years was admitted for generalised œdema, diarrhœa and fever of one month's duration. She was a member of a joint family system consisting of 9 adults whose total income was Rs. 300 per month. Her diet consisted of rice, dal and vegetables with meat or fish once a week; milk and eggs were not included.

Patient was a 2nd para, 34 weeks pregnant. The spleen was firm, and enlarged to four inches below the costal margin. Stool examination showed ascaris ova; marrow puncture was not permitted. The fever responded to paludrine. Patient was given 2 c.c. F.A.C. daily; there was a steady clinical improvement, the diarrhœa stopped and the œdema disappeared by the 10th day. Hæmatological improvement continued up to the 16th day; as a further course of 8 injections produced no response the F.A.C. was discontinued and the patient was given 3 tablets of Fersolate for 12 days, after which she left hospital.

This case was complicated with clinical malaria and ascaris infection; the initial response to F.A.C. was good but as no further progress was made on F.A.C. alone she was dewormed and given iron, to which she responded very well.

Case 2—R.R., a hindu, aged 35, was admitted for diarrhœa, palpitation and œdema of one month's duration. She was a 10th para, three children had died in early infancy and there had been two abortions. She had attended the antenatal clinics for a month prior to admission and had been treated with iron and yeast, but her condition was gradually deteriorating. Patient was 38 weeks' pregnant and her Kahn test was positive.

The patient was started on a course of arsenic and bismuth and was simultaneously given 2 c.c. F.A.C. daily for 15 days. On the 15th day she delivered a healthy male baby weighing 5 lbs. 8 ozs. Patient shewed a good clinical and hæmatological response to F.A.C. in spite of her syphilitic complication; she left hospital soon after her delivery.

Case 3—J., a hindu, aged 17, was admitted in labour and suffering from œdema and palpitation. Her husband, a sweeper earning Rs. 45/- per month on which he supported 3 adults. The patient's diet consisted of rice, dal and vegetables with no meat, fish, milk or eggs. Patient was a primipara 36 weeks pregnant. She had a premature delivery (4 lbs.) soon after admission. Sternal marrow was dimorphic.

* Folic Acid Compound, hereunder abbreviated as F.A.C.

** Not always; for a detailed discussion refer to Williams *et al.*, Biochemistry of B-vitamins, p. 571, Reinhold Publ. Corp., N. Y.

TABLE—SHOWING ANALYSIS OF BLOOD PICTURES BEFORE AND AFTER F.A.C. THERAPY AND AFTER IRON THERAPY

Case No.	Parity	Preg. in weeks	Sternal marrow	Before F.A.C. Therapy MCV cμ.	Hb. gms. %	R.B.C. mills	No. of F.A.C. Injs. 2 c.c.	After F.A.C. Therapy MCV cμ.	Hb. gms. %	R.B.C. mill	Reticulocyte % (day)	After Fe. Therapy Fe. Therapy days	MCV cμ.	gms. Hb. %	R.B.C. mill	Remarks
1.	2nd	34	...	147	2·4	0·6	24	111	6·8	2·0	36(7)	12	89	10·5	3·2	Clinical malaria and ascaris infection.
2.	10th	38	...	100	3·7	1·3	15	98	9·2	2·9	20(10)	...	...	...	...	Kahn Test + + Delivered after F.A.C. therapy.
3.	1st	36	Dimorphic	100	1·7	0·6	10	102	5·1	1·4	20(8)	7	93	7·1	2·4	Premature delivery 3rd day of admission.
4.	2nd	34	...	107	5·1	1·5	10	106		1·5	14(10)	...	...	...	...	No response. Ascaris
				...	...	...	13 (5 c.c.)	90	10·2	3·4	33(17)	25	85	11·6	3·7	20 days of Fe. therapy at home infection.
5.	3rd	28	...	118	1·7	0·6	15 (3 c.c.)	96	7·5	2·3	18(8)	18	85	9·5	3·0	12 days Fe. therapy at home.
6.	2nd	28	Megaloblasts in peripheral blood	131	1·7	0·6	22	110	7·5	2·4	23(7)	7	108	7·5	2·5	Delivered macerated fœtus after Fe. therapy.
7.	1st	34	Dimorphic	108	3·7	1·3	22	92	7·7	2·5	23(8)	8	78	8·1	2·8	Hook worm infection. Kahn + +
8.	9th	Parturient	...	141	1·7	0·5	24	114	8·5	2·6	13(12)	...	...	...	...	Hook worm and dysentery. Delivered 15 days before admission.
9.	4th	Parturient	Dimorphic	111	2·2	0·8	18	106	6·4	2·4	16(7)	7	100	8·2	2·8	6 tabs Fe. daily throughout the course of treatment. Delivered 2 months before admission.
10.	2nd	28	Dimorphic	98	3·0	0·9	14	119	6·8	2·1	26(7)	15	97	10·9	3·5	Hook worm infection. Premature still birth delivery before treatment was given.
11.	1st	28	Megaloblastic	104	3·4	0·9	7	92	5·4	1·7	26(7)	...	...	...	...	Left hospital after clinical improvement.
12.	8th	36	Megaloblastic	157	3·7	0·9	10	109	5·1	1·7	6(9)	...	...	...	...	Twin delivery on 3rd day. P. sepsis.
13.	4th	28	Dimorphic	100	4·1	1·2	20	88	5·8	2·1	13(7)	7	83	6·8	2·4	Delivered a macerated fœtus on the 12th day of F.A.C. therapy.
14.	4th	32	Megaloblastic	91	3·7	1·2	21	71	6·8	2·4	11(10)	10	84	6·8	2·5	Ascaris infection. Premature delivery during Fe. therapy.
15.	4th	28	Dimorphic	152	2·9	0·8	25	92	7·1	2·4	24(9)	10	68	7·8	2·7	Twin undelivered.
								Readmitted				15	73	8·5	2·9	After Liver (6 inj.) and Fe. therapy at home.

The patient was given F.A.C. 2 c.c. daily for 10 days followed by 3 tablets of Fersolate for seven days, she showed a good hæmatological response after F.A.C. and a further improvement after iron therapy. The patient was an uncomplicated case of anæmia and her progress was uneventful.

Case 4—D., a hindu, aged 25 years, was admitted for generalised œdema of several months duration. She was a refugee from W. Punjab and her husband was now getting Rs. 60/- per month. She was a vegetarian and her diet consisted of dal, rice and vegetables.

Patient was a 2nd para, 34 weeks pregnant, she had stomatitis and a dilated heart and stool showed ascaris infection. 2 c.c. F.A.C. was given daily for 10 days. Clinically her condition deteriorated and there was no hæmatological response. F.A.C. was increased to 5 c.c., and after 13 injections, she showed a marked improvement. She delivered a healthy male baby weighing 5 lbs. 2 ozs. She was advised to take iron and was discharged from the hospital.

The patient's initial blood count was higher than that of the other cases under investigation, yet, she failed to respond to the 2 c.c. dose. When she visited the hospital 3 weeks later her blood picture had markedly improved.

Case 5—R.N., a mohammedan, aged 30, was admitted in labour and complaining of breathlessness, palpitation and œdema of one month's duration. Her husband's income was Rs. 100/- per month on which he supported 7 adults and 2 children. Her diet consisted of rice, dal and vegetables with meat or fish four times a week.

Patient was a 3rd para, 28 weeks pregnant, she delivered a premature asphyxiated baby soon after admission. Blood transfusion was started but had to be stopped almost immediately as she developed a severe reaction. Patient was given 3 c.c. F.A.C. daily and at the end of 15 days showed a good clinical and hæmatological response. F.A.C. was discontinued and she was given iron for seven days which she continued to take after discharge from hospital. She revisited the hospital after 14 days when she showed a further clinical and hæmatological improvement.

Case 6—J. B., a mohammedan, aged 22 years, was admitted for cough, fever and generalised anasarca. Her husband's income was Rs. 45/- per month and her diet consisted of rice, dal and vegetables with fish once a week. Patient was a 2nd para, 28 weeks pregnant, but no fœtal movements had been felt for sometime; fœtal heart sound was not heard. She had signs in the chest, but the x-ray was negative. Megaloblasts were seen in the peripheral blood.

The patient was put on daily injections of liver extract, B_{12} and iron by mouth, at the end of seven days her condition had deteriorated and her blood picture had fallen considerably. This therapy was discontinued and the patient was put on F.A.C. 2 c.c. daily. Patient had 20 injections, she showed a marked clinical and hæmatological response in spite of the fact that she was carrying a dead fœtus. There was no improvement when iron was given for seven days. The patient delivered a macerated fœtus and ran away from hospital the same day.

Case 7—M.D., a hindu, aged 24, was admitted for œdema, diarrhœa and palpitations of two months' duration. Her husband's income was Rs. 50/- per month and her diet consisted of rice, dal and vegetables with meat or fish once a week. For two months she was on a milk diet as she was unable to digest her food. Patient was a primipara 34 weeks pregnant. Kahn test was positive and she had a hook-worm infection. Sternal marrow was dimorphic.

F.A.C. 2 c.c. was given for 22 days, the response was fairly good for 15 days, during the next 7 days F.A.C. was given with penicillin (antisyphilitic dose), but there was no further hæmatological response. Iron for 8 days produced a slight improvement. Patient left hospital refusing all further treatment.

Case 8—S., an Anglo-Indian, aged 35, was admitted for dysentery and generalised œdema. She had delivered a premature baby in this hospital, but had refused treatment for her anæmia and had left hospital against medical advice. She had had 9 children, 6 of whom were alive. Her husband's salary Rs. 150/- per month but he had been out of work for over a month. Her diet consisted of rice, dal and vegetables, meat was available only occasionally. Patient had glossitis, stool showed evidence of bacillary dysentery and hook-worm infection.

The dysentery responded to sulphaguanidine, patient was given F.A.C. 2 c.c. daily for 24 days. She showed an immediate response and her blood picture improved steadily. She was dewormed and left hospital soon afterwards.

Case 9—G.N., a hindu, aged 22 years, was admitted for generalised œdema and palpitations. Her husband was a street vendor and contributed to a joint family system and her diet consisted of dal, rice and vegetables with meat and fish occasionally. Patient had 4 children; she had developed œdema and glossitis during her last pregnancy 2 months previously and had not recovered since. Sternal marrow was dimorphic.

Patient was given combined therapy of 6 tablets of Bio-ferettes and 2 c.c. F.A.C. daily. She made a rapid recovery. F.A.C. was discontinued after 18 injections and iron was continued for 7 days. There was a further hæmatological response.

Case 10—S. B., a hindu, aged 30, was admitted for generalised œdema of 3 months' duration. Her husband earned Rs. 30/- per month on which he supported 2 adults and a child; her diet consisted of dal, rice and vegetables, with meat or fish occasionally.

Patient was a 2nd para, 28 weeks pregnant. She had a hook-worm infection. Sternal marrow was dimorphic. She delivered a still-born premature baby soon after admission. There was mild sepsis which responded to penicillin. The patient showed some improvement after 2 c.c. F.A.C. daily for seven days. Injections were stopped and the patient was left on the hospital diet to see if the improvement would continue. But the patient relapsed. Fish and milk have been mentioned by other workers as sources of extrinsic factors; this and earlier observations at the Lady Dufferin Hospital offer proof, that the amounts of extrinsic factors present in the basic diet are negligible in comparison to the required curative dose. Patient was given another 7 injections after which she steadily improved. F.A.C. was discontinued and the patient was given 3 tablets Bio-ferettes daily for 15 days with excellent results.

Case 11—A., a hindu, aged 30 years was admitted for generalised œdema. She was a primipara about 28 weeks pregnant; her marrow was megaloblastic. Hb = 3·4 gms. per cent, RBC = 0·96 per c.mm. and MCV = 104 $c\mu$. She was given 2 c.c. F.A.C. daily. On the 7th day patient left hospital saying that she had recovered. Clinically she had improved and her blood picture on discharge was Hb = 5·4 gms. per cent. RBC = 1·7 mill. per c.mm. and MCV = 92 $c\mu$. She had shown a reticulocyte response of 26 per cent.

This case though incomplete has been included to show the good initial response to F.A.C. The patient did not return.

Case 12—A., a hindu, aged 30, was admitted for generalised œdema and stomatitis of one month's duration. Her husband earned Rs. 100/- per month and supported two adults and 4 children. Her diet consisted of fish, rice, dal and vegetables. Patient was an 8th para, 36 weeks pregnant. Sternal marrow was megaloblastic.

Patient was started on F.A.C. 2 c.c. daily. On the 3rd day she had a premature twin delivery after which she developed mild sepsis. It is interesting to know that in spite of labour and sepsis during the course of F.A.C. therapy, the patient showed a good clinical and hæmatological response to 10 injections; unfortunately patient refused to prolong her stay in hospital.

Case 13—M., 30 years, a sweepress, was admitted for dysentery, generalised œdema and stomatitis. She was a widow and earned Rs. 35/- per month. She usually fed on left-overs and often had to do with very little food. She was a 4th para, 28 weeks pregnant and was carrying a dead fœtus. Sternal marrow was dimorphic.

The dysentery responded to sulphaguanidine. Patient was given 3 c.c. F.A.C. daily for 12 days. The clinical and hæmatological response was moderate. On the 12th day she delivered a macerated fœtus, a further course of 8 injections made no appreciable impression. With iron there was a better response. Patient refused to prolong her stay in hospital and was not seen again.

The response to F.A.C. in this case was moderate. The œdema did not completely subside with F.A.C. as in the other cases of this series. She was a case of multiple nutritional deficiencies and would have responded better to additional anti-anæmic therapy.

Case 14—N.T., a hindu, aged 24, was admitted for œdema and palpitations, her husband earned Rs. 45/- per month and supported 2 adults and 3 children. Her diet consisted of rice, fish and vegetables. She had suffered from indigestion and stomatitis for the past month.

Patient was a 4th para, 32 weeks pregnant, stool showed ascaris infection and the sternal marrow was megaloblastic. She was given 3 c.c. F.A.C. daily, there was no response after 5 days. The next 14 injections, however, produced a clinical and hæmatological response. There appeared no further improvement with iron therapy. This may be attributed to the fact that the patient had a premature delivery during the course of iron therapy.

Case 15—H, a muslim, aged 30, was admitted for debility, anorexia and œdema of feet of one month's duration. Her husband earned Rs. 100/- per month and maintained a family of 6. Her diet consisted of rice, dal and vegetables with meat or fish 3 times a week. Patient was a 4th para, 28 weeks pregnant and was carrying twins. Sternal marrow was dimorphic. MCV = 152 $c\mu$.

The patient was started on 2 c.c. F.A.C. daily and at the end of 18 days she showed a good clinical and hæmatological response. A further course of 7 injections produced no response whatsoever. F.A.C. was discontinued and the patient was given 3 tablets of Fersolate daily for 10 days. The blood count showed a slight improvement after the iron but the peripheral blood showed a microcytic picture and several normoblasts were seen. MCV = 68 $c\mu$. Patient left hospital but was readmitted for false pains. Her blood count had improved slightly and her MCV was 73 $c\mu$. As the labour pains did not progress she left hospital. She was seen again 10 months later when she visited the hospital with her twins. Mother and babies appeared to be in good health.

Comment

Cases of severe anæmia showing macrocytic blood pictures and high MCV were selected. All except 3 cases were complicated by intestinal or blood infections, or by obstetrical complications. Of the 15 cases reported in this series, 8 delivered after F.A.C. therapy, one during the course of treatment and 6 before treatment was started. The response to F.A.C. of the two main groups did not show any appreciable difference.

The economic status of all patients was very low and their diet was extremely deficient in protein substances. One case was a vegetarian and the others could not afford milk or eggs; fish and meat were available in very small quantities. Diarrhœa and indigestion had been a common complaint and several of the patients had been unable to take their daily diet before admission into hospital.

2 c.c. of F.A.C. were used in every case, except in two, where 3 c.c. were used to avoid waste, only 5 c.c. ampoules being available at the time. The 2 c.c. dose produced a satisfactory response in all the cases, except, case 4 which proved refractory to the low dose but responded extremely well to 5 c.c. The injections were not painful and the patients did not appear to resent the daily dose.

The clinical response was good. The diarrhœa was controlled and the œdema subsided with 10 days of F.A.C. therapy. The patients developed a sense of well-being and, it was difficult to retain them in hospital after their symptoms had subsided. Cases 11 and 12 left hospital as soon as they were clinically better, though their hæmatological response was incomplete.

The hæmatological response was immediate; in the majority of cases there was a good reticulocyte response between the 7th and 10th day. The RBC and Hb increased simultaneously. F.A.C. appeared to be most effective in the initial stages and in most of the cases the blood count doubled in 10 days. The MCV steadily diminished and gradually returned to normal; earlier experiments carried out at the Lady Dufferin Hospital had shown that folic acid alone did not cause a reduction in the M.C.V. (Benjamin, 1948).

Several research teams reported that the liver factor B_{12} did not cause a hæmatological response in pregnancy anæmias and that these cases responded to subsequent administration of folic acid (Geisberg, 1950 Ungley *et al.*, 1950; Day *et al.*, 1949; Lichtman, 1949).

Folic acid catalyzes the biosynthesis of thymine, whereas B_{12} catalyzes the next step in the chain reaction, which ultimately leads to nucleic acid formation

and which is essential for blood formation (Vilter, 1950). A definite physiological deficiency of folic acid thus interrupts the chain at an earlier link and consequently may render even high doses of liver factors ineffective. Pregnancy anæmia appears to be such an instance, that means, the folic acid deficiency, unless remedied, constitutes a threshcld phenomenon.

F.A.C. appeared to have no further effect after the RBC level had reached 2·5 to 3 mill. per c.mm., there was however a further increase with iron therapy.

Pregnancy anæmia, however, must be regarded as a multiple deficiency disease. The levelling of the RBC's after F.A.C. therapy and the subsequent rise following the additional administration of iron in nearly all the cases, is one indication.

The conclusion is therefore warranted that liver (and/or yeast) contains one or more essential factors which supplement the action of folic acid and are equally essential. The fact that folic acid, if administered alone has its limitations, such as (*a*) the inability to revert the macrocytosis in pregnancy anæmia, (*b*) the levelling off of the RBC's and (*c*) the persistence of neurological complications in A.P.A., does in no way diminish the importance nor the essentiality of this factor.

These observations merely indicate that one isolated vitamin could not revert all the symptoms of a multiple deficiency disease.

According to our present knowledge, the results observed can be explained by a supplementary action and also by an interaction of the various constituents of the combined preparation.

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OBSTETRICS IN ANCIENT INDIA*

K. BHASKER RAO, M.D.,

R. S. R. M. Lying-in Hospital, Madras

The problem of partutition has engaged the attention of mankind from time immemorial. Even before the dawn of history, the reference to child-birth has been recorded in the Vedas (2,500 B. C.). Rig-veda mentions that during labour the dorsal position was favoured (Mukerjee, 1944). The last of the four vedas, the Atharvan, deals with Ayurveda or the 'science of life,' where reference to obstetric art has been made.

But it is about 1,500 B. C. we find the developments in this field of medicine being recorded in the great commentaries of Susruta[2] and Charaka[3]. The former though a re-knowned surgeon was no doubt a skilled obstetrician. Charaka, pre-eminently a physician, devoted a portion of his great work to midwifery though operative obstetrics was not familiar to him.

Pelvic Anatomy and Embryology: Susruta describes the pelvic cavity as consisting of five bones (Hoernle, 1907): (*i*) anal bone (*Guda*) or coccyx, (*ii*) pubic bone (*Bhaga*); (*iii*) two hip bones (*Nitamba or Sroni phalaka*)—ilium—ischium which is fused in adults, (*iv*) triangular bone (*Trika*) or sacrum. In this pelvic cavity, the uterus is situated between the small intestines and the colon. He taught that the uterus is narrow at the mouth and expanded above. The fertilised ovum endowed with a soul gets embedded in it. The development of the embryo from the first month till it reaches full-term, has been described probably after a gross study of the fœtuses from unsuccessful pregnancies. Susruta taught that the fœtus lies curled or doubled up in utero with its head directed towards the vagina. Because of the attachment of the cord, it was believed that the fœtus depends entirely on the maternal heart for its nourishment "through the juice-bearing ducts." It was further believed, that "the fœtus in utero does not excrete fæces or urine owing to the scantiness of fæcal matter in its intestines. It does not cry because of its mouth being closed by the bag of membranes and throat stuffed with phlegm. The process of respiration is effected through its mother."

Signs of Pregnancy: Amenorrhœa, "black rash round the nipple," excessive salivation, nausea which does not abate even on smelling perfumes; and aversion to food are mentioned among the signs and symptoms of pregnancy. Charaka mentions that appearance of milk in the breasts is also one of the findings among pregnant women.

Antenatal Care: Advice to pregnant mothers has been given in elaborate details by both the authorities. The patient is advised to have clean habits,

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pleasant temperament and to wear clean white dress. Fatiguing exercises, long journeys and sexual intercourse are forbidden. She has to be nourished on clean, fresh, sweet and well-cooked food, mainly consisting of rice, milk, ghee and soup of deer-flesh depending on the period of pregnancy. About the eighth month of gestation, an enema of decoctions of medicinal herbs is advised.

COMPLICATIONS DURING PREGNANCY: Treatment of threatened abortion and miscarriage with rest, uterine sedatives and dietetic restrictions is given in detail. For antepartum hæmorrhage, if it is severe and does not respond to conservative methods, plugging of the vagina with linen soaked in medicinal juices is advocated. Intrauterine death of the fœtus was ascertained by absence of the fœtal movements, brown complexion of the mother, fœtid odour in her breath, colicky abdominal pain and sometimes abdominal distention due to putrefaction of the fœtus. From Charaka's observation that the pregnant woman becomes exceedingly pale, it appears that the anæmia during pregnancy must have been common. Pre-eclampsia or an analogous syndrome is not described. Charaka, however, mentions œdema of the legs as one of the normal features during pregnancy and elsewhere outlines the treatment of oliguria and anuria when they complicate pregnancy. Eclampsia then must have been invariably a fatal disease; for according to Susruta " a parturient, who has convulsions and deranged sense perception often accompanied with dyspnœa, is sure to die."

THE LYING-IN ROOM: During the ninth month of pregnancy, she moves in to the lying-in room. This room, 8 cubits long and 4 cubits broad, is erected on an elevated area with clean surroundings. The walls of the room must be well plastered; and its entrance face either the south or east. Charaka describes it in minute detail. Besides the numerous herbs and salt, he needs two sharp needles of gold and silver, two skiens of thread, sharp instruments of steel, two wooden bedsteads and wood to easily ignite fire. The false pains which the patient may experience near term are distinguished from the onset of labour which they could recognise by the constant severe pain at the waist, frequency of micturition and defæcation and discharge of mucus from the vulva ('show').

INTRANATAL CARE: At the onset of labour her body is annointed with oil and washed with warm water. She is given a drink of gruel to sustain her through the ordeal. She lies down on a soft bed with a pillow to support her head, with her legs slightly flexed and drawn up, but is allowed to walk at intervals or to stretch out her arms and legs now and then. Four elderly ladies with pared nails, who are skilled in the art of delivery and in whom the patient has confidence are entrusted to conduct her safely through labour. According to Susruta, she has to be told by the attendant thus—" Try to bear down the child; but do not make such an attempt in the absence of real pain." Charaka too is emphatic about this, for he expects the patient to be told, " Do not strain when there are no pains. She who strains when the pains have ceased, finds her exertions fruitless." (This advice reminds us of Dick Read's management of painless child-birth and is invaluable in the first stage of labour). First, gentle attempts and only when the labour is advanced is she asked to strain with greater force. Susruta warns the mother that the straining in the absence of real pain may lead to injury of the fœtus. No mention is made regarding the protection of the perineum or the exact method of helping out the head or the shoulders. Soon after the birth of the child, any shred of membranes lying over it is removed. With the index finger covered with well-washed cotton the child's throat, tongue and lips are cleaned. A little ghee mixed with salt is applied to its throat so that it may vomit (? mucus). Some cold water is sprayed over its face. A mixture of bruised neem leaves and ghee is to be rubbed over its forehead and a piece of oiled cloth put over it. The umbilical cord is cut between two knots with a sharp knife (of gold, silver or iron), about eight finger-breadths from the umbilicus. The child is then given a bath of warm water. The obstetricians in those days of yore were often faced with the vexed problem of retained placenta. For such cases, Charaka advises forcible pressure just over the umbilicus with the right hand, and with the left hand placed on her back, she is to be given a good shake. If this is not sufficient her loins should be pressed with the heels by one of the attendants. (This procedure must have been more productive of obstetric shock than an ill-performed Crede's method). Tickling the throat with a braid of hair is also suggested. Susruta on the other hand suggests various conservative methods (decoctions orally, enema per rectum or douches vaginally), and if these attempts are unsuccessful he advises manual removal with the hand which is well lubricated with an oily substance. It is strange that both the great authorities should be silent over the most dreaded complication of the third stage—the postpartum hæmorrhage.

DYSTOCIA: Only Susruta deals with the problem of dystocia and its solution by operative obstetrics. He rightly believed, that cephalic presentation was normal and in such cases labour was almost always normal. He recognised four abnormal presentations:—(*i*) *Kila* or breech presentations. (*ii*) *Prathikara*—head and hand or foot with impaction of the body (*iii*). *Bijaka*—head and hand (*iv*). *Parigha*—transverse lie. In addition, eight other secondary presentations are mentioned. " In some cases the mouth, sometimes the anus presents, which are always dangerous " (Wise, 1860). It was taught that three types of cases impede delivery—(*i*) deformity of the head, (*ii*) the shoulders presenting and (*iii*) thigh presentation. If the patient was unable to deliver spontaneously, the practitioner with his hand well covered with ghee did intrauterine manipulations to deliver the fœtus. If the thighs were presenting, the

feet were brought out and the infant, thus straightened was extracted (Breech extraction). In transverse lie of the fœtus, the lower part was pressed upwards and the upper part brought down (version) and thus the child was delivered. If the shoulder was presenting, it was pushed up and the head was brought down to facilitate delivery. If both hands presented, they were pushed up and the head was brought towards the vagina. The last two operations were considered difficult. If the version could not be done and the child was dead, it was divided and delivered in bits.

Though Susruta considered that "the first, best and most important of all implements is the hand," he had described 127 surgical instruments (Royle, 1837). There is evidence that he was performing abdominal sections; but there is no proof of his having performed or advised cæsarean section as a planned operative procedure for obstructed birth-canal, as stated by Eduljee (1880). Postmortem cæsarean section, however, has been mentioned in Susruta Samhita wherein he states that if the child be alive when the mother dies during labour, it should be saved by a quick abdominal section. It is believed by some, that Susruta was using '*Yujna Sanku*' or paired forceps similar to the present day obstetric forceps. But there is "no mention of any such instrument in the work of Charaka, Susruta, Vagbhata and other ancient authorities; and the Chamberlens are still the claimants for the glory of the invention" (Mukhopadhyaya, 1913). After an exhaustive survey, Das (1929) remarks "From the evidence collected so far, we cannot escape the conclusion that the ancient Hindus never had an instrument like the modern obstetric forceps." His obstetric armamentarium, no doubt, contained numerous instruments to complete the delivery when the child was dead. He perforated the fœtal head with Mandalagara (round headed knife), Mudrika or Unguli Shastra (finger knife), or preferably with Vradhipatra (a kind of leaf-in appearance) knife and extracted the fœtus by applying traction with Garbha Sanku (fœtus hook) over the breast or axilla. In hand prolapse when the fœtus was dead, the arm was cut at the shoulder joint, and then the body was delivered. Centuries later, Harita used Ardha-chandranana (semi-lunar in shape) scissors for this purpose. Evisceration was performed if the fœtal abdomen was distended and caused obstruction. In impacted breech, the pelvic bones were divided and the child was extracted. The practitioner was warned to be very careful during these manipulations so as to avoid injury to the maternal soft parts. Though anæsthesia was unknown, Susruta advised administration of wine to the patient before the operation, so as produce insensibility to pain.

Obstetric shock then must have been not an infrequent occurrence. Though rupture of the uterus has not been mentioned, the following passage is significant—"The parturient who violently—tosses her head in agony with the surface of the body becoming cold, compelling her to forego all natural modesty and whose sides of the abdomen are covered by net-work of blue veins invariably dies with the dead child locked in the womb (*S. Samhita* II—viii-8).

CARE OF THE BABY: Charaka advised breast-feeds from the first day after ghee and honey were given to the child. But Susruta was of opinion that the breast-milk starts secreting only from the fourth day, and till then the child would have to be artificially fed, thrice daily on clarified butter, honey and medicinal root.

CARE OF THE MOTHER: Soon after the delivery an abdominal binder was advised so as to reduce the abdominal distension. She was now given powdered herbal roots mixed with honey. Then for three days, she got gruel, milk and ghee. Later on she was nourished on rice, meat broth and pulses. She was allowed to take her bath on the 10th day of the puerperium, but had to be carefully looked after for a month and a half after delivery (Susruta). Worry and strenuous exercise were known to diminish lactation. So she was advised to be cheerful, eat nutritious diet—wheat, mutton soup, garlic and plenty of milk—so as to increase the breast milk. Wet nursing must have been widely prevalent because the commentators deal at length regarding the proper selection of a wet nurse, about her diet and habits. They have also discussed the signs, symptoms and treatment of puerperal sepsis (Makkala). Charaka treated his cases with Birataru (*Sida cordifolia*), powdered nitre with warm water and ghee. Susruta treated breast abscesses with oral medication; and if it should point, he advised incision over the affected part taking care to avoid the nipple and the areola.

It is surprising to find that so much of midwifery was taught and practised in this country almost 1,000 years before the birth of Hippocrates (460 B.C.). No doubt, it was shrouded in metaphysics and the medical aspect of it was based on the theory of humors. After attaining such remarkable obstetric skill, decadence gradually set in owing to various reasons. Progress ceased when the medical practitioners for centuries were afraid to go against the written mandate of Charaka and Susruta. Parallel is found in the history of the European medicine where the opinions of Galen (131-201 A.D.) went unchallenged for nearly 1,500 years. During the Buddhist era (about 500 B.C.-500 A.D.), though medical instruction was imparted in the ancient Indian universities of Taxila and Nalanda and hospitals were dotted all over the country, non-violence was the principal creed. Medicine received royal patronage. Famous physicians like Nagarjuna and Jeevaka practised during this period. But surgery, midwifery and practical anatomy were strongly discouraged. During the period of Hindu renaissance which followed, an attempt to regain the lost glory was made. Vagbhatta, in the seventh century, revived the principles of Susruta and Charaka, but could not attain the skill of the former or the brilliance of the latter,

though his reputation had spread to the neighbouring countries.

This in brief is the fascinating history of the growth and development of this branch of medicine in ancient India. When we recollect that the midwifery forceps was invented by the Chamberlens about 350 years ago and only a century has passed since Simpson used chloroform to relieve pain in labor and that only 70 years have elapsed since Sanger described the technique of classical cæsarean section, the achievements of medical practitioners in ancient India are no doubt remarkable.

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CHEMOTHERAPEUTIC ARMAMENTS FOR CAMPAIGN AGAINST TUBERCULOSIS IN INDIA

U. P. BASU, D.SC., P.R.S., F.N.I., M.R.A.S.B.,

(The Bengal Immunity Research Institute, Calcutta)

The need for a chemical agent to render *B. tuberculosis* at least bacteriologically static *in vivo* is being recognised in every country. This is more so in India as it has been estimated that the average annual number of deaths from tuberculosis in this country is in the neighbourhood of 5,00,000 and that at least one in every one hundred and forty is infected with the disease.

The 'wonder' drugs that are now available for chemotherapeutic treatment of bacterial diseases, have been found not so effective in tuberculosis. This may be due either to the peculiarities of the tubercle bacillus, to the unusual tissue response in tuberculosis, or, most probably to the limited chemotherapeutic properties of drugs studied so far. In human tuberculosis the investigations with possible chemotherapeutic agents present certain difficulties in general. The *in vitro* activity bears no relationship to *in vivo* activity; tuberculosis in the laboratory animals differs to a certain extent from that in man. Recently, the antibiotic streptomycin, certain sulphones, and para-amino salicylic acid have been found to have some advantage over the other agents previously tried. It now appears that chemotherapy may check and control tuberculosis to a considerable extent.

Supply in India of the Specific Drugs—The question naturally arises whether the above drugs may possibly be manufactured and supplied in quantity and quality in India. Here various problems arise and these are to be carefully studied and steps taken accordingly for a solution. Most of the synthetic drugs as well as the modern antibiotics are obtained from materials with the help of reagents and appliances which are often not available in quantity and/or in quality in this country. These drugs are to be processed with a specialised technique under the supervision of properly trained persons. Co-operation from clinicians of recognised hospitals is necessary in this matter and adequate support of the people and the Government is essential for the proper development of the industry within the country.

One of the Newer Drugs—Thiosemicarbazone—It would be of interest to us all if a picture on the production and supply of any new medicament be placed for careful scrutiny. With the discovery of sulpha drug attempts were made to search for one that may be effective against tuberculosis. Various products were tried in vain and it is the antibiotic streptomycin and later on, the para-amino-salicylic acid, already referred to, that are showing some results of promise. It may be recorded here that tubercle bacillus is primarily an aerobe and therefore grows best *in vitro* with a plentiful supply of air; but it also grows in almost anaerobic surroundings on a good nutrient such as egg yolk (Cohn—*Am. Rev. Tuberc.*, **49**: 463, 1944). It also requires para-amino benzoic acid for its growth (Ekstrand and Sjogren—*Nature*, **156**; 476, 1946). Sulpha drugs are known to be affected by para-amino benzoic acid and as such search for compounds whose activity would not be inhibited by the above acid was being pursued. The drug para-amino salicylic acid also is inhibited by the presence of para-amino benzoic acid whereas streptomycin is not. Extensive investigations in the line have offered a product from a thiosemicarbazone of an aromatic aldehyde, which is found to exert a definite tuberculostatic activity in human tuberculosis. The compound that has attracted a special attention is 4-acetylamino benzaldehyde thio-semicarbazone. It is now being produced in different countries (Basu—*Antiseptic*, **48**: 40, 1951), and marketed under various trade names.

This thiosemicarbazone compound has been clinically applied in a number of cases of tuberculosis. But in order to evaluate correctly any anti-tubercular drug a great number of patients have to be treated over a period of several years. For this the drug must be available within the country in quantity and quality. Let us now consider the position of its supply in India.

Difficulties in Production—The clinical observations so far recorded abroad show that it would be better to begin treatment with the above drug with a dosage of 25 mgm. to 50 mgm. per day and to increase this daily dosage gradually to 100 mgm. within the following 7-10 days. In India if the treatment be started with 25 mgm. dose and if the dose be gradually increased so as to reach 100 mgm. within 10 days, 550 mgm. of the drug would be necessary for the treatment of one patient. As in pulmonary tuberculosis a six-month treatment is being found to give beneficial results, the requirement of the thiosemicarbazone for each patient would come to 9·9 gm. or approximately 10 gms. Table 1 gives a list of chemicals and their amounts in round figures that would be then necessary for the production of the thiosemicarbazone that would enable the treatment of about 1 million patients.

TABLE 1—SHOWING THE AMOUNTS OF CHEMICALS NECESSARY FOR PRODUCTION OF THIOSEMICARBAZONE IN AMOUNTS SUFFICIENT TO TREAT 1 MILLION PATIENTS

No.	*Name*	*Weight in lbs.*
1.	Acetic acid	2,600
2.	Acetic anhydride	2,450
3.	Caustic soda	1,150
4.	Hydrazine sulphate	3,650
5.	Nitro-toluene (para)	2,600
6.	Potassim carbonate	2,000
7.	Potassium thiocyanate	3,200
8.	Rectified spirit	18,000
9.	Sodium sulphide	1,500
10.	Sulphur	700

If a review be now made on the availability of the above chemicals it would be found that more than 33 per cent of the materials are to be imported from abroad as they are not being manufactured in India and these are: acetic acid, acetic anhydride, hydrazine sulphate, potassium thiocyanate and sulphur. Further, it is to be seen that the coal-tar chemical necessary in the case is only 7 per cent of the total materials essential for production. As such the oft-quoted saying that for want of coal-tar distillation the syntheticals are not being produced in quantity, cannot be justified in all cases.

Availability of Chemicals—If the availability of the chemicals as recorded in Table 1 be scrutinised, it would be found that at least three of them, namely, acetic anhydride, potassium thiocyanate and sulphur, are to be imported from abroad. The acetic acid may be produced to some extent in Bhadrabati Iron Works and the hydrazine sulphate prepared at least to meet the demand from the chemicals as noted in Table 2. The amount of different materials required for producing 3650 lbs. of hydrazine sulphate would also be not negligible as evident from the Table 2.

TABLE 2—SHOWING THE AMOUNT OF CHEMICALS NECESSARY FOR PRODUCING HYDRAZINE SULPHATE (3650 LBS.)

No.	*Name*	*Weight in lbs.*
11.	Ammonia gas	36,600
12.	Caustic soda	8,200
13.	Chlorine	7,800
14.	Hydrochloric acid	36,600
15.	Gelatin	2,750
16.	Sulphuric acid	17,600

In the above list gelatin is included; this is not being produced but work has been completed under the auspices of the Council of Scientific and Industrial Research for its production on commercial scale. This can be produced from scrap skins; the location for establishment of this factory needs careful scrutiny regarding climatic conditions and rainfall. The maximum temperature should preferably be below 25°C and the amount of rainfall must be small.

It may be noted that some of the chemicals are being produced in India but not in sufficient quantity to meet the normal requirements. Table 3 gives a picture of their position at the present stage. From Table 3 it would be found that we are completely deficient in sulphur which is at present being imported from U.S.A. or Italy. The Council of Scientific and Industrial Research is fully aware of this want and as such is devoting attention towards a solution of the problem. Regarding nitrotoluene it is to be added that conversion of toluene to nitrotoluene would afford two products—ortho and para. The former is to be utilized for some other syntheticals. But as already indicated, the successful production of syntheticals depends considerably on the availability of various inorganic chemicals like acids, alkalies and carbonates. The latter two have been shown to be in short supply and the availability of the former in abundance depends on the regular and timely import of sulphur from U.S.A. or Italy.

TABLE 3—SHOWING ANNUAL PRODUCTION AND REQUIREMENTS OF SOME CHEMICALS.

No.	*Chemical*	*Requirement in tons*	*Production in tons* 1950	*Remarks*
3.	Caustic soda	65,000	10,835	
5.	Nitro-toluene	—	—	May be prepared from toluene.
6.	Potassium carbonate ...	500	—	Plant Ash: A source.
	Sodium carbonate ...	130,000	44,690	

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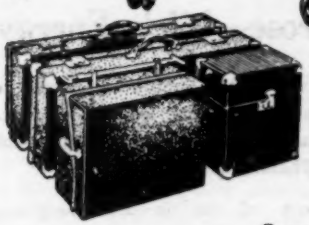

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TABLE 3—(CONTD.)

No.	Chemical	Requirement in tons	Production in tons 1950	Remarks
9.	Sodium sulphide	3,000	500	
10.	Sulphur	61,200	—	No source uptil now.
11.	Ammonia gas	For synthetic ammonium sulphate	Sufficient	
13.	Chlorine	Not yet fixed	Sufficient	Related with caustic soda production.
14.	Hydrochloric acid ...	Dittto	Dittto	
15.	Gelatin	75	—	
16.	Sulphuric acid	Dependent on the expansion of industries	101,114	Dependent on sulphur.

Other Problems—Besides the availability of chemicals the proper types of appliances are also not being produced in India. In all the modern syntheses on large-scale, acid and alkali resisting vessels under various physical conditions, are essential; we are yet to produce stainless steel, rubber or glass-lined vessels which might be safely used for evaporation, digestion, and/or other reaction.

The dearth of personnel is not a serious handicap, as it is to be remembered that operative science is an art and as such whatever qualification a scientist or technologist may gather from his training centre, he will have to adjust himself in factory conditions for operative skill.

Another difficulty that arises in India, due to its vast geographical region, is the want of quick transport. For economic productions, main raw materials must be within a limited zone as otherwise unnecessary cost would be involved in transport. For pharmaceuticals and other biological products rigid standardization is of utmost importance and necessary facilities must be available for examination, test or analysis of the products regarding their potency, efficacy and strength even on storage under various climatic conditions existing in India. For the maintenance of standard the Drugs Rules have now been implemented and it would be the duty of the State, public health authorities and the public to see that drugs and medicaments are being produced and manufactured for sale after maintaining and following the schedules that have been laid down in the statute book. Here the Indian Medical Association may play a considerable role and even go so far as to fix up like its sister organisation in the United States of America, standards for non-official drugs. For this the Association is to form a special committee of chemistry and pharmacy and with the co-operation of associations like the Indian Chemical Society, Indian Institution of Chemists, Indian Pharmaceutical Association and the Indian Chemical Manufacturers' Association may give a new drive for compilation of a book like New and Non-official Remedies as published by the American Medical Association.

CONCLUSION

It appears, therefore, that the successful production of a synthetical medicament in a way that might help the clinicians in their approach for the treatment of suffering humanity involve a very complex problem in the present state of our country. Still if there is determination, and an all-round co-operation amongst the technologists, industrialists and the clinicians is achieved, many medicaments can be produced to meet our own requirements. The State must also move in a way that might be helpful in the proper development of the industry.

The 4-acetyl amino-benzaldehyde thio-semicarbazone—the new chemotherapeutic agent for the treatment of tuberculosis is a pure chemical compound of a definite melting point of about 230°C with decomposition. This may be produced with resources available in India and be placed before the clinicians as a new armament in their fight against tuberculosis.

CASE NOTES

AUREOMYCIN IN AMOEBIASIS

P. K. CHATTERJEE, M.B. (CAL.),
M.R.C.P. (LOND.), F.C.C.P.

AND

B. BASU ROY, M.B.,

Calcutta Port Commissioners Hospital, Calcutta

Several reports have now appeared in the literature showing good results in the treatment of amœbiasis with aureomycin. Most workers, however, recommend that aureomycin should be used with other amœbicidal drugs to prevent relapses. The literature has been summarised in a leading article in the *Lancet* (1951) recently.

In two of our recent cases aureomycin failed to control amœbiasis. The first was a case of amœbic liver abscess complicated with peritonitis which ended fatally. In the second case an acute attack of amœbic

dysentery developed during the course of aureomycin therapy in a case of infective hepatitis.

Case Reports

Case 1—R.K.L. H.M. 24 yrs. was admitted on 18-8-50 with a history of 3 days' fever, cough and pain in the right hypochondrium. On examination he was found to be very ill. Temperature, 102·6°F.; P/R—106/32; tongue, coated and dry; no cyanosis and no jaundice; lungs showed diminished breath sounds at right base and crepitations at both bases, the liver was palpable; a little tenderness and muscle guard was found in the right hypochondrium.

The blood showed a leucocytosis of 24,600 per c.mm. with 92 per cent of polymorphonuclears and 8 per cent of lymphocytes. Urine on examination showed a trace of albumen and stools contained a few cysts of *Ent. histolytica*.

He was put on penicillin and sulphadiazine. His condition did not improve however in the subsequent 2 or 3 days. He developed signs of bronchopneumonia in both lungs and had severe abdominal distension. Some acute abdominal mischief was suspected. A blood culture on the 6th day was negative. Fluoroscopy and skiagram of the chest showed an obliteration of the right costophrenic angle, diminished movement and blurring of the outline of the right dome of the diaphragm and bronchopneumonic patches in the both lung fields.

He was then put on aureomycin. An initial dose of 8 capsules, followed by 2 capsules every four hours, were given. The temperature rapidly came down with aureomycin but the patient's general condition did not improve. Abdominal distension increased and there were signs of free fluid in the peritoneum. There was bulging, œdema and tenderness over the lower part of the right chest. An amœbic liver abscess with perforation was suspected. Emetine grain one was given daily by intramuscular injection. Aspiration of the abscess was tried. A small quantity of pus was drawn out and it showed vegetative form of *Ent. histolytica* on microscopic examination. As the patient's condition did not improve, a laparotomy under local anæsthesia and gas and oxygen was done. The peritoneal cavity was found to be full of fibrino-purulent exudate and fibrin flakes. Stomach, duodenum, appendix, gall bladder and pancreas were found normal. Pus was seen to be coming from the upper aspect of the liver. Peritoneum was cleaned and closed with two drainage tubes. He was given blood transfusion and plasma, but he died two days after operation.

Post-mortem examination—The liver was taken out through the abdominal operation wound. It showed a large lobulated cavity with markedly ragged walls, at the postero-superior part of the right lobe. The abscess had burst on the upper surface of the liver and discharged in the peritoneal cavity. The diaphragm was intact. The scrapings from the wall of the abscess showed vegetative form *of Ent. histolytica*.

Case 2—Siddira H. M. aged 42 yrs., was admitted on 16-5-51, with 3 days' fever and pain on the right side of upper abdomen. He had a temperature of 102°F. P/R—106/22; tongue was clean and moist; there was fairly deep jaundice, the lungs showed diminished resonance and breath sounds over the right base; the liver was enlarged 1 finger below the costal margin and was slightly tender.

Blood: W.B.C., 24,600 per c.mm. poly—90 per cent, lympho—10 per cent, mono—nil, eosino—nil. M.P.—nil. van den Bergh reaction—immediate direct positive. Icterus index—36 units. Blood culture—sterile.

Stool—Soft, yellow. No parasites, ova or cysts seen.

Urine—A trace of albumen, excess of urobilinogen and bile pigments.

A diagnosis of infective hepatitis was made and he was put on penicillin and aureomycin in view of high leucocytosis and pneumonia of the right base. Aureomycin was given in doses of 2 capsules (0·5 gm.) every 6 hours.

The treatment had no effect on the temperature and on the second day there was a pleural rub at the right base. Skiagraphy and fluoroscopy of the chest showed the right dome of the diaphragm raised, its movement restricted and obliteration of the right costophrenic angle. The base of the right lung showed some congestion. Aureomycin and penicillin were continued.

Two days later, after 6 gm. of aureomycin had been given he developed dysenteric stools which on examination showed plenty of red blood cells, pus cells and large number of vegetative form of *Ent. histolytica*. He was then put on emetine hydrochlor, one grain injection daily by the intramuscular route which readily controlled the dysentery and amœbæ disappeared from stool in two days.

He was given 14 gms. of aureomycin in 7 days and 9 grains of emetine. The temperature gradually came down to normal. Jaundice gradually disappeared.

Discussion

In the first case, the diagnosis was in doubt in the early stage. Aureomycin was started early, but did not have any effect on the amœbic process in the liver. Emetine was started perhaps too late to be effective. In the second case, it was doubtful whether the hepatitis was of virus origin or amœbic or due to both. Aureomycin was given early and after 3 days of treatment the patient started acute amœbic dysentery which had to be controlled with emetine.

It appears, therefore, that in cases of acute forms of amœbiasis, it will not be wise to rely on aureomycin alone.

Summary

(1) A case of liver abscess bursting into the peritoneum is described in which aureomycin treatment had no effect on the amœbic process.

(2) A case of infective hepatitis has been described where during the course of aureomycin treatment, an acute attack of amœbic dysentry developed.

Acknowledgment

Our thanks are due to Dr. Kalidas Nandy, Officiating Chief Medical Officer, Calcutta Port Commissioners Hospital, Calcutta, for his kind permission to publish records of these two cases.

Reference

Lancet, 1: 1163, 1951.

TREATMENT OF PLAGUE WITH AUREOMYCIN

K. RAMACHANDRAN, M.B.B.S.,

Medical Officer, Isolation Hospital, Latur, Hyderabad State

Aureomycin was tried on 15 cases of plague at the Infectious Diseases Hospital at Latur in Osmanabad district, which is a hyperendemic area of plague in Hyderabad State.

Diagnosis—The diagnosis of all cases that are presented was based on clinical signs and symptoms with a previous history of epidemic in the villages from which the patients were brought, a few deaths from fever and enlargement of the glands having occurred in these villages.

Type of Cases Treated—BUBONIC PLAGUE: Of this type, some were admitted with high fever which was followed within a few hours by the appearance of very painful and tender swellings in the regional lymph nodes and others had low temperature of about 100°F with pain and swelling in the regional lymph nodes on admission but rising in a few hours to 106·4°F (axillary) and the patients becoming comatose.

SEPTICAEMIC PLAGUE—Patients of this type came from an infected locality and gave a history of sudden onset of fever with severe frontal headache and within a few hours the temperature rising very high resulting in delirium and coma.

On the whole 15 cases were treated of which 12 were bubonic and 3 septicæmic. Of these fifteen, four were males, five females and six children.

Results of treatment—Of the total 15 cases, 12 were discharged cured and three died within a few hours after admission. These three patients were brought in a serious condition, the drug having had thereby no time to act.

Toxicity of the drug—No toxic manifestation was encountered.

Remarks—All these cases were treated with aureomycin alone and no other drug was given in addition. The results of treatment have been found very encouraging. The drug was given orally in all cases and no injection was given.

A statement showing details of cases treated with the drug and the dosages employed is appended below.

Acknowledgment—My thanks are due to the Assistant Director of Public Health, Dr. S. Raghavender Rao, for kindly going through my paper, to Major General S. L. Bhatia, Inspector General of Medical Services Hyderabad, for the kind permission to publish this article and to M/s. Lederle Laboratories India Ltd., for supplying the drug for trial.

TABLE SHOWING THE DETAILS OF CASES TREATED WITH AUREOMYCIN

Case No.	*Age and Sex*	*Temp. on admission*	*Duration of fever in days*	*Site of bubo, if present*	*Duration of bubo in days*	*Day of opening of bubo*	*Initial dose of drug in mgm. × 6 hrly.*	*Subsequent dose*	*Total drug used in gms.*	*Result*	*Remarks*
1.	10 Mc	104°·6F	1	Rt. groin	2	4th day	250	250 × 8 hrly.	5·25	Cured	1st day delirious, 2nd day conscious. From 5th day temp. normal.
2.	6 Mc	102°·6F	1	do.	1	7th day	250	250 × 6 hrly.	2·5	do.	2nd day temp 105° (max.), loose motions, vomiting + + + 5th day temp. normal.
3.	16 F	103°F	3	Lt. axilla	3	Resolved	250	do.	2·75	Cured	4th day temp. normal.
4.	25 M	105°·6F	2	Rt. groin	2	8th day	500	do.	7	Cured	1st day delirious with temp. of 106°·2 (max) 3rd day conscious. 8th day temp. normal.
5.	35 F	106°·2F	5	Septicæmic	—	—	500	500 × 2 hrly.	1·5	Expired	Fever since 5 days and coma since 2 days. Died within 5 hours of admission.
6.	15 F	103°·9F	3	do.	—	—	500	250 × 6 hrly.	6	Cured	4th day temp. normal.
7.	8 Mc	105°F	1	Lt. axilla	1	6th day	250	do.	2·5	Cured	3rd day temp. normal.
8.	25 M	103°·8F	1	do.	1	Resolved	250	do.	2·5	Cured	do.
9.	10 Fc	104°·8F	1	Rt. cervical	1	—	500	—	0·5	Expired	Cellulitis of the right half of the face with bleb over the right lower eye lid. Comatose on admission with hæmoptysis + Died within one hour.

TABLE (*Contd.*)

Case No.	Age and Sex	Temp. on admission	Duration of fever in days	Site of bubo, if present	Duration of bubo in days	Day of opening of bubo	Initial dose of drug in mgm. × 6 hrly.	Subsequent dose	Total drug used in gms.	Result	Remarks
10.	35 F	104°·8F	1	Lt. axilla	1	6th day	500	250 × 6 hrly.	7·5	Cured	Vomiting on admission which stopped on 5th day. 6th day temp. normal.
11.	35 M	106°·4F	1	Lt. groin	1	7th day	500	do.	5·25	Cured	1st day comatose, 2nd day conscious. 7th day temp. normal.
12.	12 Fe	105°·4F	1	Rt. groin	1	do.	250	do.	3·25	Cured	1st day comatose. 4th day conscious and temp. normal.
13.	11 Fe	105°·4F	1	Septicæmic	—	—	500	500 × 2 hrly.	1·5	Expired	Very toxic and semi-conscious and history of 8 people having died in the village. Died in 6 hrs.
14.	13 F	105°·2F	1	Rt. axilla	—	Refused	250	250 × 6	3	Cured	1st day very toxic. 3rd day bubo appeared and temp. normal.
15.	25 M	102°·8F	1	Lt. cervical	1	Resolved	250	do.	3	Cured	Within 4 hrs. temp. rose to 106°F (axillary) and became comatose. 3rd day became conscious. 5th day temp. normal. 7th day he developed slurred speech and weakness of limbs. 17th day went home walking.

N.B.—The following groups were from one and the same village. (1 & 11), (2, 3, 4, & 5), (7 & 12), (8, 9, 10), (13 & 14), 6 & 15 were from different villages.

NEED OF BETTER RATIO BETWEEN POPULATION AND FOOD SUPPLY

Dr. Abraham Stone, the "Family Planning" expert, told Rotarians in Calcutta on 4-12-1951 that in all plannings for upgrading the standard of life, there must be a place for biological planning too so that the people could understand the question of both the quantity and quality of population.

Dr. Stone, now touring India at the invitation of the Union Government, said that Government of India was the first ever one in the world to approach the World Health Organisation to advise it on matters of family planning. The initiative of India Government, he added, would go down in the history of the world as a shining example.

He said he had visited Indian villages and industrial areas and that he was impressed by the need for family planning in India. Family planning meant that one should have the ability to decide how many children one should have so that a proper standard of living was attained or maintained.

The world was faced to-day with this dilemma of population because of the fact that while the human fertility had been increasing, soil fertility for food production had been decreasing. Some 300 years ago, the world population had been about 500 millions. It had now about quadrupled. In India too the population had been increasing at the rate of four to five millions a year. All these would have been satisfactory if the world resources for food supply had kept pace with the growth in population.

Check in the growth of population had always been there even in the ancient days. In India, for instance, it was in such social custom as widowhood, and a would-be mother's going to and staying at her mother's house before and after child birth.

Dr. Stone pleaded for adoption of two-fold ways: (*i*) to increase food production and (*ii*) to bring about a better ratio, through family planning, between population and food supplies.

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INDIAN MEDICAL ASSOCIATION
CALCUTTA, FEBRUARY, 1952

FAMILY PLANNING

It is commendable that the Government of India have at last been enlivened to the magnitude of the growing population problem of our country and have taken up measures to evolve schemes for scientific family planning. This is a move in the right direction as we notice that experts have been brought from the World Health Organisation to study the problem in this country and to advise our Government on the suitability of measures to be introduced here. Dr. Abraham Stone's services have been specially requisitioned in this connection.

Family Planning is not a new feature of modern society. It was known in India for a long time and various restrictions—ostensibly religious—were imposed on the mating of the partners. With the growth of civilisation changes have been brought about in the methods to be adopted in achieving the objective. In this, it must be admitted, our counterparts in the Western countries have gone far ahead of us and have carried out scientific research on the various methods to be adopted to limit or space out adequately the number of children in a family.

Ours is a peculiar country which abounds more in villages than towns. It must be admitted that in rural areas, where the greater bulk of the population lives, there is not much in the way of the amenities of life and the people are steeped in ignorance and illiteracy. Moreover, due to want of communication facilities, it becomes difficult for social and other workers to get in touch with the villages without encountering hurdles of unsurmountable nature. It is in these areas and in bustees where the poor section of the population lives that birth rate is the highest and that again is rapidly on the increase.

Planned parenthood is indispensably needed for our country to save our people from the serious economic crisis which faces them.

Methods based on older and traditional Indian self-control to space out additions to the family would perhaps have been the best but circumstanced as we are now-a-days, we have discarded many of our old ideas to fit ourselves into the present pattern of civilisation and because of this we are compelled to take recourse to methods which have a scientific background and are accepted by the civilised world.

Various methods to limit families are in vogue, starting from abortion, the use of chemical and mechanical contraceptives, sexual abstinence and moral restraint. The method that enjoys the vogue now is the use of sexual life during the so-called "safe" period after the menstrual cycle. This is popularly known as the rhythmic method.

Because of ignorance, prejudice and superstitious preconceptions in them our people in general did not take much of interest in this subject. In our country on an average between four and five millions increase in population every year. Mere production of more food will not solve the problem, because if this rate of increase in population continues, there might reach a time when the maximum yield of the soil might not be able to cope with the needs. Thus planned parenthood has got to be introduced on social and economic grounds.

In our country inspite of 85 per cent of the population being illiterate, the most modern form of democracy has been introduced. From reports that we gather from newspapers, the rural population are taking more lively interest in exercising their franchise than the urban people. Thus it can be said that our illiterate rural people are getting themselves livened up to the modern concepts of life and we feel that if the Government with the help of social workers and the medical profession establish family planning clinics all over the country, the same will receive great support from the masses.

We find from the proceedings of our annual conferences that from 1928 onwards this question of limiting the family on scientific, economic and sanitary principles has been repeatedly discussed and the profession have tried to focus attention on this very important subject all these years.

Country-wide family planning programme should not only be launched but earnestly pursued so that our general economic structure is re-orientated and methods suitable to the various sections of the society are properly evolved. This needs a band of social workers who should be suitably trained and they have to spread out amongst the masses for the dissemination of their knowledge amongst the women who are in the rural areas. Urban municipalities and local self-governing units *viz.*, District Boards and Union Boards can also take their share with the help of their health staff in schemes of this nature. Members of the medical profession also, we are confident, can do their best to assist the sponsoring of the scheme all over the country.

We are greatly relieved to learn that Government have included this subject with top priority in the programme for their Five Year Plan and have started work in right earnest and are collecting data to proceed with the scheme. Bombay has started these clinics in its urban areas. Other States are also on the march. Let us hope, after the submission of the report by Dr. Stone, Government would consult local experts who have devoted considerable time in working out schemes on this subject, and then introduce measures for the benefit of the common people all over the country. We feel this subject brooks no delay as with the acute food

shortage and abnormally low economic level of our people, family limitation is urgently and immediately called for.

QUALITY DRUGS

There was a number of conferences in Calcutta last month when amongst various subjects that were discussed the question of ensuring purity in the manufacture of drugs and medicaments that are of every day use to the people afflicted with diseases, engaged the serious attention of all. That there are adulterated and sub-standard products marketted all over, cannot be denied and it is a happy state of affairs that several speakers at the All-India Pharmaceutical Conference spoke about this situation particularly as it affects the health of our people.

Since the first World War, India has developed its drug industry to a certain extent and has done its best to hold its own in the manufacture of vaccines and sera and injectable products but we have to depend upon chemical and other reagents and machinery from foreign countries for the manufacture of the finished products. There are, of course, firms who base their products on proper standard and quality but there are some who taking advantage of the growing national sentiments of the profession and our countrymen, have taken to the manufacture of questionable products much to the disadvantage of the drug trade and the reputation of our country. With a view to safeguard the purity of the products the drug industry, and the profession cried hoarse to have a comprehensive food and drug Act for years together. Although as a result of these agitations, the Chopra Committee was appointed and it finished labours in 1930, the Government of India took ten long years to get the recommendations on the statute book and still another seven years were needed to get the provisions of the Act operating. This history process leads us to conclude that all concerned were not as serious as the exigency of purity of drug supply demanded. Inspite of the passage of the Act there are still some areas in our country where the Act is still inoperative. The way in which the Drug Act machinery is working, all over the provinces can hardly be said to be satisfactory. In the interest of national health, deterrent measures are urgently called for. The experience of the operations of the Drug Act leads us to believe that it needs overhauling to afford the consumer greater protection from the pernicious onslaughts of the disreputable enemies of society.

In this connection, a passing reference has to be made to the short supply and the consequent underground movement of the antibiotics without which modern treatment practically becomes a myth. So long these are not manufactured in our country, restrictions on their import from abroad should be removed and no short supply should be allowed as this definitely leads to black market. We have suggested in these columns in the past for stringent and exemplary measures for those who indulge in adulteration of foods. We do reiterate the same in the strongest terms and urge for the introduction of measures to put a stop to the evils of adulteration and manufacture of questionable drugs in our country.

OUR CONFERENCE

On the 17th of February we meet at Ahmedabad for the 28th session of our annual conference. Members of the medical profession from different parts of the country will assemble under the auspices of the national organisation of ours *viz.*, the Indian Medical Association. We had the privilege of enjoying the hospitality of our Ahmedabad brethren once before when we had another session there.

Due to the general elections to the State legislatures and Parliament all over the country which is just over, we could not meet during the Christmas recess, as many of our members were engaged directly or indirectly in these elections.

On occasions like these, usually stock-taking is done of the progress or otherwise of the very many points discussed at the previous conference and new programme is laid before the conference for being adopted for the ensuing year.

Last year we had Dr. T. N. Banerjee a veteran educationist from Bihar to guide our deliberations and this time also we will be privileged to have the guidance and advice of another educationist from Southern India in the person of Dr. T. S. Tirumurti who is ripe in age and experience to lead the conference.

Ahmedabad is noted because of the freedom movement on a mass scale inaugurated by Mahatma Gandhi from his Ashram there. Many reckon this place as one for pilgrimage and rightly so, because many a light to inspire the nation from Cape Comorin to the Himalayas, from the Indus to the Brahmaputra, came from this city of Gujarat. The city also gave the nation that valiant fighter for independence, Sardar Vallabhbhai Patel.

With such rich background to the credit of Ahmedabad, let us hope the medical profession will also get a right lead and arrive at correct decisions to solve the many problems that confront them to-day. We attach greater importance to this conference this year because immediately after its session, new provincial and central governments would be formed with representatives of the people returning to the legislatures on adult suffrage and we will have to do our best to establish better co-operation with the governments. The conference will have to shape its deliberations with a view to be of use to the common citizen of our country, particularly with a view to prevention of diseases with assurance of positive health and even distribution of the available medical facilities on a rationally planned basis. Let the banks of Sabarmati provide enthusiasm and wisdom to those who would meet at Ahmedabad to serve the profession and people alike.

CURRENT MEDICAL LITERATURE

Factors Influencing the Development of Cerebral Vascular Accidents

Wilson and others (*J. A. M. A.*, 145: 1227, 1951) in dealing with the role of candiovascular insufficiency as one of the factors influencing the development of cerebral vascular accidents observe that in a series of 542 cases in which an acute cerebral vascular accident was demonstrated at necropsy, the past medical history, clinical examination or autopsy revealed evidence of cardiocirculatory insufficiency in 451 (83 per cent). These findings suggest that systemic circulatory inadequacy plays an important part in the causation of cerebral vascular accidents. Preventive measures and therapy should be directed toward maintaining the general circulatory status at a maximum level.

Arteriosclerosis

Morrison (*J. A. M. A.*, 145: 1232, 1951) in dealing with recent advances in the dietary and medicinal treatment of arteriosclerosis writes that atherosclerosis is a metabolic error, not the inevitable accompaniment of advancing age, and that it may be a preventable process. The concept is presented that atherosclerosis develops through a triad based on (*a*) a high cholesterol-high fat diet, (*b*) malfunction of the liver, involving disturbances in lipid and lipoprotein metabolism, and (*c*) deficiencies and imbalances in endocrine function implicating the thyroid and sex hormones. A program of treatment is given, shown to be useful in coronary atherosclerosis, which is based on (*a*) low fat-low cholesterol intake (20-25 gm. daily), (*b*) the daily use of lipotropic agents, such as a choline-inositol combination taken after meals, and (*c*) the employment of thyroid extract and/or oestrogen and androgen hormones, where indicated by clinical and/or laboratory examinations.

Needle Biopsy Studies in Hepatic Abnormalities in Congestive Heart Failure

White and others (*Circulation*, 3: 501, 1951) give in the following lines the summary of their observations:

Needle biopsies of the liver were on 30 patients with congestive heart failure and correlated with clinical features and biochemical function studies. Biopsy revealed normal (histologic) sections in 17 patients, portal cirrhosis in 6, focal infiltration in 5, central necrosis in 1, and pericentral vein fibrosis in 1.

Histories of dietary deficiency and alcoholism were related to the observed hepatic changes but were often present with normal histology. Physical examination permitted an accurate diagnosis when correlated with history in some instances, but led the clinician astray in others. Neither jaundice, splenomegaly nor ascites could be correlated with histology. Spider angiomas were seen only in 2 patients with portal cirrhosis. Type of heart disease, degree of heart failure, and duration of heart failure could not be correlated with the observed histology.

Biochemical liver function studies did not provide a clue to encountered histology. The dissociation of biochemical tests and histology suggested that the latter was not responsible for the observed liver function changes.

Diuretic therapy was more effective in patients with normal histology, focal infiltration and pericentral vein fibrosis. Fluid accumulation was resistant to treatment in patients with cirrhosis and in a patient with central necrosis. Prognosis was related to the degree of liver disease in the patients with portal cirrhosis and to the type of heart disease and severity of congestive failure in the others.

Needle biopsy of the liver is a useful adjunct to the history, physical examination and biochemical function studies in determining the state of the liver in congestive heart failure. It permits an anatomic diagnosis and improves prognostic and therapeutic perspective in patients with persistent hepatomegaly associated with heart failure.

Ammonium Chloride Acidosis

Sesisenger and Freedbarg (*Circulation*, 3: 837, 1951) in reporting on six cases observe that the acidosis was severe in 4 cases and nearly fatal in 2. Six to 8 gm. were administered to each patient for 7 to 45 days. Five patients had congestive heart failure and one, subacute glomerulonephritis. Each of the 5 patients with congestive failure had underlying renal disease. The clinical manifestations ranged from anorexia, nausea and vomiting with lassitude to marked stupor, areflexia and Kussmaul respiration. In all cases rapid improvement followed omission of ammonium chloride and administration of fluids and lactate intravenously.

No close relationship between the degree of congestive heart failure, the amount of drug administered or the severity of acidosis was noted. Three of the patients in congestive heart failure developed marked azotemia.

The possible roles of altered renal hæmodynamics in congestive heart failure and anæmia in the etiology of the acidosis is discussed.

Ammonium chloride is a valuable adjunct in the management of congestive heart failure, but should be used with great caution when renal disease is suspected or present. It is suggested that the administration of ammonium chloride be limited to a period of three consecutive days per week. When longer periods of administration are necessary, careful observation of the patient and measurement of the carbon dioxide combining power are indicated.

Myth of Strict Bed Rest in the Treatment of Heart Disease

Levine (*Am. Heart J.*, 42: 406, 1951) writes that there is both clinical and physiological evidence to support the view that strict bed rest is deleterious to patients with congestive heart failure. There is abundant reason to believe that if heart failure is present, the heart obtains more rest with the patient in a chair with the feet down than while the patient is recumbent in bed, even if the head and back are elevated.

On the basis of this simple concept it is advised that most patient with threatened or evident congestive heart failure be treated, not in bed, but in a comfortable chair and, when they do go to bed at night to sleep, 8 to 9 inch blocks be placed under the headposts to encourage gravity to keep body fluids in the legs rather than in the lungs.

This principle has also been applied in the treatment of acute coronary thrombosis (after the stage of shock has passed off). The author reports a mortality of 10 per cent in the care of seventy patients with acute coronary thrombosis who were placed in chairs for varying and increasing periods of the day beginning not later than the first week of the attack. The results of this method of treatment seem encouraging and appear to have both physical and psychic advantages over the strict bed rest method of treatment.

Aureomycin and Chloramphenicol in Herpes Zoster

Carter (*Brit. M. J.*, **1**: 987, 1951) writes that fortyfour patients with herpes zoster were divided for treatment in four groups of 11 patients each. The first group of patients served as controls and was given dextrose. The second group was given 2 gm. of aureomycin daily for six days. The third group received 4 gm. of aureomycin daily for four days. The fourth group was given 2 gm. of chloramphenicol (chloromycetin) daily for six days. The controls were selected at random, and the observers did not know which patients were in this group. No significant difference was found between the groups in respect to amount and duration of herpetic pain, paresthesias, or the appearance of new herpetic lesions. Treatment with either aureomycin or chloamphenicol within the first week of the rash shortened the pustular stage so that desquamation was earlier and scarring less. All the patients treated with aureomycin and all but two of those treated with chloramphenicol were free from secondary infection, which was present in all the controls. The effect of the antibiotics thus can reasonably be attributed to their action on the secondary infection. Two patients with dramatic amelioration of symptoms have been reported on in detail; one was treated with aureomycin, and the other was a control. In view of these results, it seems that such expensive drugs should be employed only in very severe cases, particularly ophthalmic zoster, occuring in elderly or debilitated patients.

Thiosemicarbazones in Pulmonary Tuberculosis

Shane and others (*Canad. M. A. J.*, **64**: 289, 1951, Ref. *J.A.M.A.*, **146**: 1265, 1951) write that sixteen male and nine female patients, 14 with moderately advanced and 11 with far advanced pulmonary tuberculosis, were treated with amithiozone ('contibiol'). Treatment was planned to continue for three months. Each patient received a daily dose of 50 mgm. for the first week, 100 mgm. for the second week, and 200 mgm. for the remainder of the course. Of the 25 patients, only 17 were able to complete the course, because of subjective toxic symptoms in four patients, of rœntgenologic evidence of extension in two, and severe neutropenia in two. In three of the patients with subjective toxic symptoms an attempt was made to continue treatment by a reduction in the daily dose to 100 mgm., but even this reduced dose was not tolerated. Only three of the 25 patients gained weight during treatment, the rest lost weight in amounts varying from five to 17 lb. (2·3 to 7·7 kg.). Ten patients showed rœntgenologic improvement at the end of the study. The changes consisted of some measure of resolution of the exudative component, similar to those noted with para-amino-salicylic acid. In four of 20 patients with sputum positive for tubercle bacilli at the beginning of the treatment, the sputum became negative, but in 16 tubercle bacilli were still demonstrated at the end of the course. All patients felt some degree of malaise during treatment, and all felt better when the drug was discontinued. Twentytwo patients complained of nausea, 15 of vomiting, two of diarrhœa, and two of headache. Twelve patients had drug fever, that is, a persistent elevation of temperature to 99°·5 F. Sixteen patients had less striking manifestations, including chills, watering of the eyes, periorbital œdema; pruritus, and enlargement of cervical lymph nodes. Six patients had significant proteinuria, presumably indicating some degree of renal irritation. Anæmia occurred in five patients, all of whom had a normal blood picture at the start of the treatment. In two patients almost complete neutropenia developed. Because of the equivocal therapeutic results and the toxic effects, the authors believe that the drug has no advantage, over other therapeutic agents, such as streptomycin and para-amino-salicylic acid, and that it is too toxic for general use. If used at all, it requires more stringent laboratory supervision than is usually available.

Chemotherapy in Tuberculosis of the Larynx

Wallner and others (*J. A. M. A.*, **145**: 1252, 1951) in reporting on the results of treatment of 70 patients with laryngeal tuberculosis given streptomycin and/or para-amino-salicylic acid observe: all but two of 39 patients with pain were completely relieved. There was some improvement in the hoarseness in all but six; in 41 it ranged from a marked to a complete return of the normal voice. The disease progressed in three patients and remained unchanged in two others. Improvement was slight in five patients and moderate in 23; marked to complete healing occurred in 37.

Streptomycin and para-amino-salicylic acid have a marked beneficial local action on tuberculosis of the larynx. Their use represents the first real advance in therapy for this disease in many years. Para-amino-salicylic acid is especially valuable in patients whose organisms have become streptomycin-resistant.

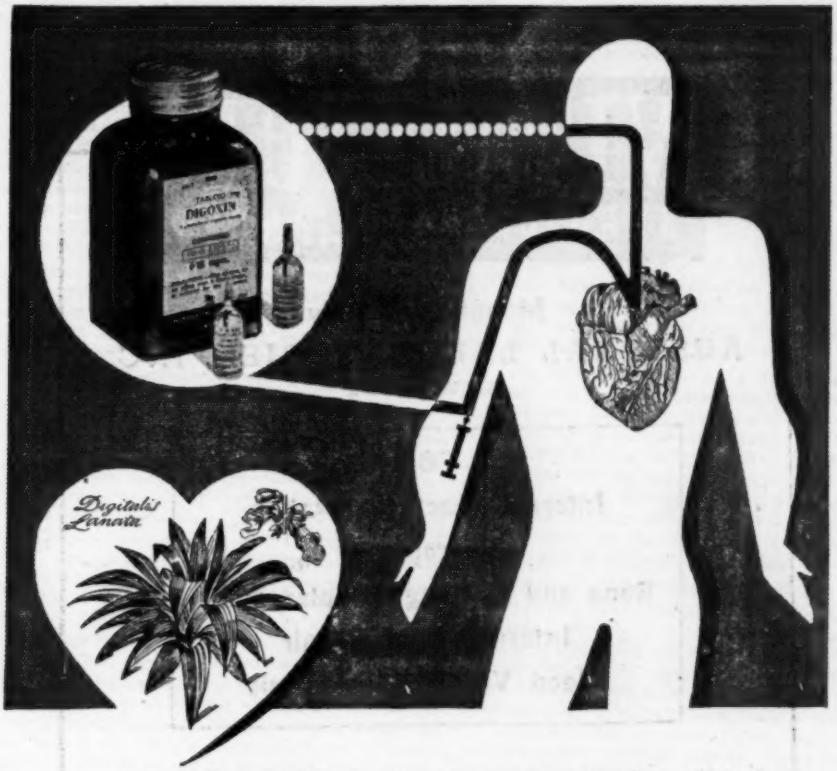
These drugs hold promise of arresting the laryngeal disease or of improving it enough so that the added handicap that this complication imposes is removed. The prognosis becomes that of the pulmonary condition alone, rather than the poorer one of pulmonary tuberculosis with laryngeal involvement.

Para-amino-salicylic Acid for Tuberculous Cervical Adenitis

Morris and Prosser-Evans (*Lancet*, **1**: 1199, 1951) write that fifty-one patients with tuberculous cervical adenitis were treated by aspiration of pus and instillation of sodium para-amino-salicylate in the past two years. A 10 years survey of results of other methods provided a basis for comparison. The abscess was aspirated with a large-bore needle inserted directly into its superficial wall. The contents were completely evacuated, and up to 1 ml. of a 20 per cent solution of sodium para-amino-salicylate was instilled into the abscess cavity through the aspirating needle. On withdrawal of the needle very little of the solution escaped, even when under moderate tension. Aspiration and instillation were repeated at weekly intervals, until the contents of the abscess cavity became serous and no further pus formed. In those cases in which a sinus had formed along the needle track, up to 1 ml. of a fairly thick sterile jelly containing 20 per cent sodium para-amino-salicylate was injected through the orifice of the sinus. If a sinus ulcer developed, a cream of similar strength was applied superficially and renewed daily, until the granulation tissue of the ulcer floor was clean. Sodium para-amino-salicylate apparently reduced significantly the area and depth of residual scarring in suppurative tuberculous cervical adenitis. More than half the treated patients were cured, with little or no evidence of the original lesion remaining in the skin. The healing time was substantially reduced. The results, in general, compare favourably with those achieved by more active measures (curettage), and the patient need not be hospitalized.

Liquorice in Addison's Disease

Groen and others (*New Eng. J. Med.*, **244**: 471, 1951 write that Borst recently demonstrated that glycyrrhiza



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(licorice) extract causes sodium retention and potassium loss leading to an increase in extracellular fluid, plasma volume, venous pressure, and pulse pressure. He concluded that glycyrrhiza contains a substance with desoxycorticosterone-like action. Groen and co-workers then administered 15 gm. of glycyrrhiza extract per day to a patient with Addison's disease previously controlled with desoxycorticosterone acetate. Mineral equilibrium was maintained as long as the glycyrrhiza therapy was continued. Withdrawal of the extract was followed by reappearance of the clinical, biochemical, and hæmodynamic disturbances. A second course, of 30 gm. daily, again produced clinical and laboratory remission. In another patient with Addison's disease a crude extract of one of the main ingredients of the extract, ammonium glycyrrhizinate (3·3 gm., daily orally), maintained sodium, potassium, and chloride equilibrium. Glycyrrhizonic acid is a component of glucuronic acid and glycyrrhetinic acid. The latter is a polyterpene with a structural formula exhibiting a striking resemblance to the cyclopentenophenanthrene steroids, to which group desoxycorticosterone belongs.

Complications of Chloramphenicol Treatment

Furbetta and Bufalari (*Settimana Medica, Florence*, **39**: 138, 1951, Ref. *J. A. M. A.*, **146**: 1453, 1951) write that chloramphenicol was given to 160 patients with typhoid. Results were satisfactory in 154 cases (96·25 per cent). The clinical course and termination of the disease after the use of chloramphenicol was atypical in six patients, three of whom died. There was acute repeated intestinal hæmorrhage on the second and fourth day after the treatment in one case and recurrence of typhoid two and three months after cure in two cases. Typhoid appendicitis with rupture of the appendix occurred three weeks after recovery in one of these patients. The three deaths occurred from cardiovascular collapse in two patients with late typhoid parotitis and in one with late acute toxic typhoid symptoms. The author believes that chloramphenicol diminishes immunity in the course of typhoid and permits massive liberation of toxins from tissues. These are carried by the blood stream to the parotid glands and other structures, causing the severe and often fatal complications of typhoid after cure.

Treatment of Common Acute Infections of the Fingers and Hand

Pilcher (*Brit. M. J.*, **1**: 1378, 1951) deals with the subject under the headings of:

Paronychia—Pus is usually present when the patient is first seen, and it is subcuticular. Unless he is seen within twenty-four hours of the onset of pain paronychia should be explored at the first visit. To find the pus the nail fold is separated by blunt dissection from the nail, a start being made at the site of maximum tenderness. This manœuvre will release the pus and after this has been mopped away the nail must be carefully examined to see if pus has tracked beneath it. If it has, the undermined area of nail is excised but adherent healthy nail is left. An incision into the nail fold is not necessary. Any cuticle that has been elevated by pus is carefully snipped away. Subsequently the nail folds must be carefully inspected daily and care taken to prevent premature adherence to the nail, which may cause pocketing of pus and result in further spread under the nail. Occasionally a lateral pulp infection produces a subcuticular component beside the nail. Careful inspection of the abscess in paronychia will reveal the track to the deep component when it is present.

Pulp Infection—(*a*) Subcuticular purulent blister: The blister is completely unroofed by snipping away the raised cuticle. The floor is mopped dry and inspected for a track into the pulp. If found, its extent and direction are measured by probing, and the opening is then enlarged in the appropriate direction. Probing should include a deliberate search for bare bone. (*b*) No subcuticular blister but pus diagnosed by localized tenderness: Incision is made over the site of maximum tenderness and when pus is found it is mopped away and the abscess explored with a probe. The incision is then enlarged, if necessary, in the appropriate direction and, as in the previous case, a search is made for bare bone. The abscess is also inspected for the presence of slough, which must be removed if loose, but its excision is not recommended.

Volar Infection of Proximal and Middle Segments—These are dealt with as pulp infections. It must be remembered that in the flexion creases there is little fat, and the skin approximates closely to the tendon sheath.

Web Infection.—In the early stage this is manifest by swelling to the adjacent fingers and of the back of the hand and also some separation of the fingers. As in other parts of the hand abscess may be detected by the formation of a subcuticular purulent blister or localized tenderness after the diffuse infection has begun to subside. Incisions are made carefully through skin only and enlarged according to the direction of spread as shown by probing. The most generally useful incision for these infections is one in the overlying flexion crease at the base of the finger.

Carbuncles.—Subcuticular blisters, usually multiple, are a feature of carbuncle, but the chief cause of trouble in these infections is slough. There need be no hurry to open the blisters, as little good will be done until the slough is loose and can be removed. Incisions are not necessary is most cases, but sometimes a large slough can be extracted only after enlarging the spontaneous opening in the skin.

Dressings and Aftercare:—Dry gauze dressings are recommended for all cases, and the patient is instructed not to remove the dressing or to get it wet. The dressing is changed daily until the wound is healing. In paronychia it has been found useful to introduce a little penicillin lactose powder under the elevated nail folds, and in pulp infection with bare bone a little of the powder is packed into the depth of the wound. Paronychia after the formation of pus has ceased requires no dressing unless the nail has been removed, and for early cases without removal of any nail frequent washing with soap and water is recommended after operation.

Persistence of much swelling is an indication for continued splinting and elevation of the limb. Troublesome swelling is commonest in web infections and carbuncles, the swelling being mainly on the back of the hand and fingers. As soon as the signs of infection have subsided, particularly pain and swelling, movement and use of the finger are to be encouraged. If the patient is having antibiotic treatment there appears to be no risk of recurrence of the diffuse stage of the infection. In most cases healing is rapid after pus has been evacuated and slough removed. The commonest cause of delay in healing is the persistence of adherent slough. At the daily dressing the wound must be inspected for slough, which is pulled out when loose. Other possible causes are bone infection, joint infection, and the presence of foreign bodies. Delay in healing also occurs in cases in which a large slough has separated slowly, leaving a cavity which has had time to become somewhat rigid. If there is any doubt about the cause of delay the finger can be x-rayed for bone changes or

opaque foreign body. But a careful exploration of the wound under ring block and tourniquet is more likely to provide the answer.

CURRENT TOPIC

28TH ALL-INDIA MEDICAL CONFERENCE AHMEDABAD

Ahmedabad, the headquarters of the Northern Division of Bombay State, is an important city situated on both banks of Sabarmati River. It lies 306 miles North-East of Bombay on the B. B. & C. I. Railway and 539 miles South-West of Delhi. The city has a population of 8 lacs and it extends over 13,000 acres. It is the capital city of Maha-Gujarat. This city was founded and built by Sultan Ahmed Shah in 141 A.D. This new city of Sultanate grew steadily in size and population for nearly five centuries and the work of adorning it, with architectural monuments was carried out with unremitting energy, by subsequent Sultans and Nobles. During Mahratta days the city lost its trade and commerce. The British followed the Mahratta in 1817. The then population of Ahmedabad was 80,000. By about 1870, mills started, school and educational facilities increased, the B. B. & C. I. Railway was started and Ahmedabad developed trade and commerce and began to be prosperous.

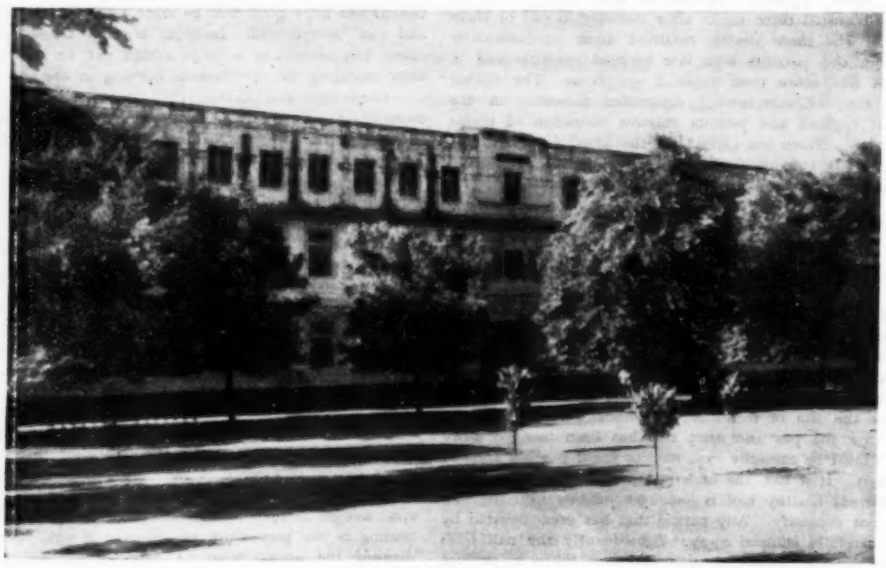
The city came into the limelight both politically and socially since Gandhiji made his permanent home on the bank of river Sabarmati. Ahmedabad became a centre of attention of the whole world. From here Bapuji spread his political, social and religious gospel throughout the country. This city has always remained in the forefront during major political upheavels.

Commercially also, this city is the centre of textile industry. To-day, beautiful cloth, rich in design and colour is produced in this city. At present there are nearly 67 textile mills in Ahmedabad. It is also well-known for calico printing. The printed cloth still finds market in far East. It will be interesting to note that Burmese and Siamese 'Lungis' are printed in Ahmedabad.

In the sphere of education also, the city has made very rapid progress. It has its own University with two arts colleges, two science colleges, engineering college, commerce college, law college and medical college. The unique features are the college of pharmacy and research facilities for textile industries.

There are several high schools and primary education is imparted free by the Municipal Corporation. The Gujarat Vidyapith, the parallel educational institution during non-co-operation movement is still a pioneer in imparting education on Gandhian Sarvodaya and Wardha lines.

The Municipal Corporation is very progressive and has changed the aspects of the whole city. The present city can boast of, beautiful Hill Garden around lake Kankaria, beautiful Shahibag and expensive Ellis Bridge area. Lastly—the medical and health facilities are also in abundance in the city. There are two big hospitals, *viz.*, the Sheth Vadilal Sarabhai General Hospital and the Sheth Chinai Maternity



SHETH C. N. VIDYALAYA,
THE VENUE OF THE CONFERENCE.

Home and Civil Hospital to which a medical college is attached. There are several municipal dispensaries. Recently a tuberculosis outdoor clinic has been started by the Municipal Corporation with mass miniature radiography. The municipality is also running the Infectious Diseases Hospital. There are several hospitals and maternity homes run by

private enterprise of which Sheth Lallubhai Gordhandas Hospital is an outstanding institution. Some of the textile mills also run hospitals for providing facilities to their workers. The Calico Mill Hospital and Arvind Group Mills' Hospital and several other hospitals on smaller scales provide such amenities to their workers.

There are several monuments with architectural elegance and beauty for the mental recreation for those interested in that branch. The places worth visiting are the Sidi Sayed's Mosque at Lal Darwaja, with its beautiful Indo-Saracenic design and window tracery work; Rani of Sipri's Mosque at Astodia, considered to be the gem of Ahmedabad architecture and one of the most exquisite buildings of the world, the Rauza of Shah-Alam near Chandola, the perfect example of delicate Ahmedabad style; shaking tower, the wondrous piece of engineering enigma; temple of Hatheesing outside Delhi Gate with 1008 facade scriptures which represent all known forms of musical instruments and different forms of dances known to India, in the whole of its history, Dada Hari's Vav (Step-well) at Asarva, the parapets of which are carved in tracery of purely Hindu style and several other monuments.

The Satyagraha Ashram and Udyog Mandir, Mahatmaji's premier home and nidus of his activities and experiments are places of pilgrimage, where every Yantrik should pay his homage to the 'Father of the Nation.'

The Gujarat Vidyapith, the first National University founded by Mahatma Gandhi, run on Wardha lines is not a place to be lost sight of.

Lastly, the Calico Museum of Textiles located in the compound of Calico Mills, which gives insight into the methods of production of yarn and cloth from olden times to textiles made by modern plants, should be visited by the interested. The Museum is a historical approach to the Indian textile industry and it possesses some of the rarest specimens of handicrafts made in different parts of India during last seven centuries.

PROVISIONAL PROGRAMME OF THE CONFERENCE

Wednesday the 13th February, 1952.

8-0 to 9-0 A.M.	Breakfast.
9-0 to 10-0 A.M.	Registration of Delegates, Visitors etc.
10-0 to 1-0 P.M. (C. N. Vidyalaya)	Working Committee Meeting.
1-0 to 2-30 ,,	Lunch.
2-30 to 4-30 ,,	Working Committee Meeting.
4-30 to 6-30 ,,	Golden Jubilee Programme, Final sports.
6-30 to 8-0 ,,	Working Committee Meeting.
8-0 to 9-0 ,,	Dinner.
9-0 P.M. onwards	Working Committee Meeting if necessary.

Thursday the 14th February, 1952.

8-0 to 9-0 A.M.	Breakfast.
9-0 to 12-0 Noon	Working Committee Meeting.
12-0 to 2-0 P.M.	Lunch.
2-0 to 4-30 ,,	Working Committee Meeting.
4-30 to 6-30 ,,	Golden Jubilee Programme and Tea.
6-30 to 8-30 ,,	Working Committee Meeting.
8-30 to 10-0 ,,	Dinner.
10-0 P.M. onwards	Golden Jubilee Programme.

Friday the 15th February 1952.

8-0 to 10-0 P.M.	Breakfast and Registration etc.
10-0 to 12-30 P.M.	Central Council Meeting.
12-30 to 2-0 ,,	Lunch.
2-0 to 5-0 ,,	Central Council Meeting.
5-0 to 5-30 ,,	Tea.
5-30 to 8-30 ,,	Central Council Meeting.
8-30 to 9-30 ,,	Dinner.
9-30 to 11-30 ,,	Central Council Meeting, if necessary.

Saturday the 16th February, 1952.

8-0 to 9-0 A.M.	Breakfast.
9-0 to 12-30 P.M.	Central Council Meeting.
12-30 to 1-30 ,,	Lunch.
1-30 to 4-30 ,,	Central Council Meeting.
4-30 to 5-0 ,,	Tea.
5-0 to 8-30 ,,	Central Council Meeting.
8-30 to 9-30 ,,	Dinner.
9-30 P.M. onwards	Central Council Meeting, if necessary.

Sunday the 17th February, 1952.	
8-0 to 9-30 A.M.	Breakfast and Registration of delegates, visitors etc.
9-30 to 12-30 P.M. (Place Town Hall)	(1) *Inauguration of the Conference.*
,, ,, ,, ...	(2) *Inauguration of Golden Jubilee week.*
,, ,, ,, ...	(3) Inauguration of Exhibition.
,, ,, ,, ...	(4) Speech by Chairman, R. C.
,, ,, ,, ...	(5) Presidential Address.
,, ,, ,, ...	(6) Messages.
,, ,, ,, ...	(7) Election of Subjects' Committee.
,, ,, ,, ...	Lunch, (C. N. Vidyalaya).
12-30 to 2-30 P.M.	Scientific session (Symposium—Burns).
2-30 to 4-30 ,, ...	Tea.
4-30 to 5-0 ,, ...	Scientific Session (Papers and discussion).
5-0 to 7-20 ,, ...	Entertainment.
7-30 to 8-30 ,, ...	Dinner.
8-30 to 10-0 ,, ...	Subjects Committee and Scientific films.
10-0 P.M. onwards	
Monday the 18th February, 1952.	
8-0 to 9-0 A.M.	Breakfast.
9-0 to 12-0 Noon	Scientific Session. (Symposium—Diabetes).
12-0 to 2-0 P.M.	Lunch.
2-0 to 3-0 ,, ...	Scientific session (Discussion on Diabetes).
3-0 to 4-30 ,, ...	Scientific session (Papers).
4-30 to 5-0 ,, ...	Tea.
5-0 to 7-0 ,, ...	Scientific session (Papers).
7-0 to 8-0 ,, ...	Entertainment Programme.
8-0 to 9-30 ,, ...	Dinner.
9-30 to 11-30 ,, ...	Entertainment.
Tuesday the 19th February, 1952.	
8-0 to 9-0 A.M.	Breakfast.
9-0 to 12-0 Noon	*Open Session of the Conference.*
12-0 to 1-30 P.M.	Lunch.
1-30 to 4-0 ,, ...	Scientific session (Symposium—Contraception).
4-0 to 4-30 ,, ...	Tea.
4-30 to 7-0 ,, ...	Visit to places of interest.
7-0 to 9-0 ,, ...	Dinner.
9-0 to 11-0 ,, ...	Film Shows.

P.S. (1) Minor changes in the final Programme will be announced during the session.
(2) Inauguration ceremony of the conference and exhibition are arranged at the Sheth Mangaldas Town Hall.
(3) All other Programmes are arranged in the premises of Sheth C. N. Vidyalaya, Ellis Bridge, Ahmedabad 6
(4) Food charges: Vegetarian, Rs. 30/- for three days and Rs. 10/- per day for extra days before and after Conference. Non-Vegetarian:—Rs. 40/- for three days and Rs. 60/- for 5 days.

Sd. P. R. Trivedi, Organising Secretary.

NOTES AND NEWS

FOURTH INTER-AMERICAN CARDIOLOGICAL CONGRESS

The Fourth Inter-American Cardiological Congress will be held in Buenos Aires from August 31st. to September, 7th. 1952.

Those who wish to participate in it as Titular Members have to ask for their registration before April 1st. 1952, and will pay a fee of $250 m/n. Their relatives who wish to be registered as Associate Members will pay a fee of $100.

The Members who wish to give communications, must send before April 1st. 1952 (and by way of the National Society of Cardiology to which they belong (or directly if there is no Society of Cardiology in their country) a summary of each work that must not exceed 200 words, and if possible, written in Spanish or Portuguese and in English.

All correspondence must be addressed to the Administrative Secretary's Office of the Congress, Larrea 1132, Buenos Aires.

CONFERENCE OF THE ASSOCIATION OF PEDIATRICIANS OF INDIA

The above Conference will be held at Hyderabad-Deccan, on the 2nd and 3rd of March, 1952. This is open to members of the Association and all those interested in Pediatrics.

Those who desire accommodation at Hyderabad, are requested to write to Dr. Pargaonkar, Opp. Sultan Bazars Hospital, Hyderabad-Deccan.

PENICILLIN FACTORY NEAR POONA

Dr. N. L. MacPherson Chief of the Anti-Biotics and Insecticides section at W.H.O. Geneva headquarters, an expert in penicillin manufacture, and Mr. A. M. Fennis, W.H.O. consultant in engineering design have reported " great hope " of an early start of the construction of the penicillin factory near Poona.

The report followed discussions with the Ministries of Health and of Commerce and Industry concerning the blueprints for the factory, which the two experts brought with them to India last week.

In July last, the Government signed an agreement with the World Health Organisation and the U. N. Children's Fund for International Assistance in setting up the penicillin factory. The estimated cost is Rs. 2 crores, under the agreement WHO would spend $350,000 (Rs. 16,00,000) on technical assistance in constructing the factory and getting it into production, while UNIEDF will provide plant and machinery to a value of $850,000 (Rs. 40,00,000). The Government of India will retain full control over the erection, operation and maintenance of the factory and its staff.—P.T.I.

DRUG RESEARCH IN INDIA

The Pharmaceuticals and Drug Committee and the Malaria Chemotherapy Committee of the Board of Scientific and Industrial Research, Government of India, decided at a two-day meeting held at Lucknow on 15-12-51 to stimulate cultivation and survey of medicinal plants in Kashmir and Ladakh Valley for drug research in India.

The drug research scientists present at the meeting were Col. Sir R. N. Chopra, Col. Jaswant Singh, Dr. S. S. Bhatnagar, Dr. D. K. Viswanathan, Dr. U. P. Basu, Father Santapu, Prof. T. R. Seshadri, Dr. K. A. Hamid, and Dr. B. Mukerjee.

Out of the total amount of about Rs. 20 crores spent by India in 1950-51 on allopathic system of medicines and accessories about Rs. 12 crores were spent on foreign imports according to figures collected by Dr. B. Mukerjee, Director of the Central Drug Research Institute, Lucknow.

The Committees, therefore, decided to promote drug research in India at several centres like Bombay, Delhi, Calcutta and Madras, and research in these centres would be integrated with the Central Drug Research Institute, Lucknow. The Committee considered about 20 schemes in this connection.

The Malaria Chemotherapy Committee discussed the schemes for research on malaria and its cure and various insecticides for the control of the malady with special reference to research on the production of new anti-biotics and harmones.

PSYCHOLOGY OF THE CRIMINAL

In the presente of a large number of high-ranking police officials of Calcutta and West Bengal, Dr. Walter C. Reckless, the United Nations Expert on Criminology, delivered a lecture on "Psychology of the Criminal" on 26-12-1951.

Dr. Reckless is now on a visit to India at the invitation of India Government to study the crime problems and the problems of Jail administration in India.

Dr. Reckless, said that in this country there were many criminological problems produced by peculiar social and economic conditions. When these problems of food, housing, education were solved, the crime position in India would be different and would be like this (i) One to two per cent intelligent criminals *i.e.*, who would commit crimes by applying brains (*ii*) two to three per cent would be mentally deranged criminals (*iii*) ten to twelve per cent would be neurotic criminals (*iv*) fifteen per cent of the criminals would require the treatment of the psychopaths. The rest of the criminals might be casual offenders but not habitual offenders.

Dr. Reckless said that remedies would be two-fold (*i*) better living arrangements and (*ii*) psychiatrists and psychologists to visit criminals in courts and jails and treat them.

Dr. Reckless said that he did not believe that criminal propensities were inherent in a criminal. Criminals were produced by immediate situations and by interactions of personalities. All criminals had not the same personalities; they differed greatly from one personality to another. It was not always true that one person who had committed a murder and who had otherwise no criminal record in the past would be a source of danger in the society more than any other man if he was set free.

56 LAKH TUBERCULIN-TESTED IN INDIA UP TO OCTOBER, 1951

Up to the end of October, 1951 over 56 lakh people have been tuberculin-tested in India.

Children and young adults are especially susceptible to tuberculosis and in order to protect them against infection B.C.G. vaccination is being given by specially trained doctors all over the country from Kashmir to Cape Comorin and from Assam to Kutch.

ROLE OF DOCTORS ENGAGED BY INDUSTRY

Dr. M. D. D. Gilder, Bombay's Health Minister, while inaugurating the third All-India Conference of Industrial Medicine, at the G. S. Medical College Lecture Theatre, Bombay on 13-12-51 gave a brief account of the growth of industrial medicine, Dr. Gilder said that the first book on the subject was written by an Italian physician some 320 years ago, while the first book in English on the subject was written by a Leeds doctor about 120 years ago. Medical factory inspectors were being employed as far back as a century ago, though India was far behind in the sphere and medical factory inspectors in this country were just at present coming into field. First of all, industrial medicine was the primary concern of the employers. Then the employees assisted the employers through workers' guilds. Next, insurance companies came in, and finally the Government entered the field. During the two world wars, industrial medicine assumed importance because of the shortage of manpower and the need for the full utilisation of the faculties of the available manpower. It was then realised the ill-health of workers was a loss not only to the workers themselves, but also to the employers. The general practitioner, Dr. Gilder said, had a great part to play in maintaining records and histories of the cases handled by them, and in this type of work particularly, it was necessary to enlist the co-operation of the workers. Industrial medicine, as far as he knew, started with preventive medicine and "safety first." Curtailed hours of work and a curtailed life span of the workers were a matter for concern as much to the employees as to the employers.

Col. J. R. Kochhar, the President of the conference said amongst other things:

In a recent investigation by Lt.-Col. Najib Khan, who surveyed the medical facilities in industries in India and collected data of 100 industries covering 2,87,414 employees revealed that only 33 per cent of the factories employed full-time doctors and the total number of full-time doctors employed in those 33 per cent of the factories were 150.

The full-time doctors had on an average 1,112 employees per doctor and considering the family unit as four, each doctor had to look after 4,448 persons. The analysis also revealed that just over ten per cent of the employers spent

one rupee per head per week for medical treatment and only 50 per cent were spending over eight annas per head per week on medical treatment of their employees.

As most of these firms were providing medical facilities to their employees as well as their families, with a family unit of four, ten per cent of the factories that spent the maximum amount of money were only spending annas four per head per week and only 50 per cent were spending over two annas per head per week towards medical treatment of their employees and families.

Col. Kochhar added that the frequency of accidents in Indian factories was very high—about one in 40·6 workers sustained physical injury during the course of work and one in 618 met with their death. The annual accident rate was 2,463 for 1,00,000 employees and the fatality rate was six per 1,000 reported cases of accidents.

The Society for the Study of Industrial Medicine, Col. Kochhar added, aimed at (1) the stimulation of inquiry and research into the causes, treatment and prevention of industrial diseases (2) guidance of industry with regard to the problem of industrial medicine, hygiene on the modern scientific principles; and (3) to secure effective and complete organisation of the medical officers in industry.

Papers dealing with the various aspects of industrial medicine were read at the scientific session of the conference—*Times of India.*

MEDICAL SCIENTISTS OF WORLD REPUTE TO VISIT CALCUTTA

A team of eleven top-ranking medical scientists from seven different countries is to spend one week in Calcutta on medical education projects of a type which has proved its value all over the globe since the war. The visits, which are being organised by the World Health Organisation in co-operation with the West Bengal Government, are stated to have three main purposes:—(*i*) Exchange of information with local medical specialists; (*ii*) Lectures and demonstrations on new advances in medical techniques; and (*iii*). Discussion of problems relating to medical education in the host countries. In addition the visiting scientists will advise in their special fields if such advice is expressly sought by host governments.

The team, which is under the chairmanship of Dr. Erik Husfeldt, Professor of Thoracic Surgery, University of Copenhagen (Denmark), is the first of its kind to visit S. E. Asia. It is scheduled to arrive in Calcutta on February, 4.

Dr. Erwin Kohn, Chief of the Exchange of Scientific Information Section of WHO, who is at present in New Delhi, is shortly proceeding to Calcutta to finalise arrangements for the team's visit.

ASSOCIATION OF PHYSICIANS

The Annual Conference of the Association of Physicians of India will be held at Hyderabad (Dn.) on the 2nd, 3rd and 4th March, 1952 along with the Annual Meeting of the Pediatricians and the Cardiologists.

Symposia on Infantile Cirrhosis of Liver, Rickets, Tuberculous Meningitis, Dysenteries in India, Congenital Heart Disease have been arranged at these joint meetings. There will be, besides, other scientific communications.

MEDICAL CARE FOR MINING LABOUR

The Central Hospital, Dhanbad, was opened by the Hon'ble Shri Jagjivan Ram on the 6th December, 1951. This hospital will provide all-round medical facilities for coal mining labour. It has adequate provision for all specialised treatment. The staff includes a surgeon superintendent, a physician, an eye-ear-nose and throat specialist, ten medical officers, a matron, 5 sisters and 27 nurses at present. Nearly 38 lakhs of rupees have been spent on the building, equipment and medicine.

The Regional Hospitals at Tisra and Katras in the Jharia coalfields, and at Chora and Searsole in the Raniganj coalfields have been functioning since 1948, and various improvements have been made in these hospitals of late.

The foundation stone of the Central Hospital for Raniganj was also laid on December 7, 1951 at Kalla near Asansol and it will cost nearly 36 lakhs of rupees.

CORRESPONDENCE

The Editor is not responsible for any views expressed by contributors

MEDICAL ETHICS AND RESPONSIBILITIES

Sir,—This is not meant as a criticism of my colleagues, including myself, but I think, matters have come to such a pass that it is high time for us to make a thorough heart-searching and rise above the weakness, shortcomings and defects which are daily lowering us in the estimation of our own conscience and in that of the general public.

The words and actions of a fully qualified doctor in all countries are usually governed by three factors:—

(*i*) the standard of his education, culture and conscience (frequently guided by a non-official association like the Indian Medical Association);

(*ii*) the edicts of semi-official body like the Indian Medical or State Medical Council which offers registration to doctors; and lastly,

(*iii*) the laws of the State.

The International Code of Medical ethics, as recently circulated amongst our members, or the Declaration of Geneva contained therein, is based, more or less, upon the same famous oath of Hippocrates, the father of Medicine, which was introduced as early as the 5th. Century B.C. It will not be out of place to quote here a few lines of that famous oath of the ancient world which run thus ".....My patients shall be treated by me to the best of my power and judgment, in the best manner without injury or violence. Neither will I be prevailed upon by anyone to administer noxious medicine nor will I be the author of such advice myself. I shall never recommend means to procure abortion but will live and practise chastely and religiously. I will not meddle with lithotomy leaving that to operators of that art.....". Manu also writes in his famous 'Sanghita' in the Vedic era:—" All physicians and surgeons acting unskilfully in their several professions must pay for injury to brute animals the lowest, but for injury to human creatures the middle amercement or penalty (500 penas) "—Manu translated by Jones, IX, 284.

The most important duty of a doctor that I can think of, is to maintain the highest standard of professional conduct and to practise his profession conscientionsly and with dignity. It is high time for us to do a little heart searching with a view to find out how far we have been able to go by the dictates of our conscience and how often we have been unable to preserve our dignity in presence of temptations and allurements. I know of an experienced doctor who had a wise sermon to preach: " Whenever I go to see a new patient in

a house, I try to find out the most influential relation of the house and pay more attention to him than to the patient with the invariable result that the house becomes my permanent party and gradually the neighbours of the house too." This is a fact and, although materially successful, this is how we go down in our character and in the estimation of the public who unhesitatingly take us to be opportunists not votaries of Science. Take another instance. I know of a village doctor who was called upon to see an injury case in a well-to-do but homeopathy-minded family of the village. On alighting from the car, the doctor asked the anxious father at the door—"Have you given 'Arnica'?"—the father nodded in a smiling and pleasing assent and half the battle was won,—the other half successfully won by continuing Arnica along with Penicillin. Perhaps, you have not yet forgotten the offer of a highly qualified doctor who had given 40 per cent concession to a rich and flourishing concern over the most nominal charges regarding medical and laboratory fees. I do not know how many of us have been able to keep the standard of medical fees with regard to different concerns as well as in our daily practice of life.

Motives of profit should never be our only aim and object;—On the contrary, the health of our patients should be our first consideration. Our responsibility has increased a hundred times of what it was 15 years ago. I know of a doctor who x-rayed the chest of a patient on suspicion and although there was no evidence of any lesion in the lungs,—put the patient on P.A.S. and streptomycin. The former Calcium injection therapy, with the vague and dangerous statement that the lungs are weak, is still prevalent in some quarters. There are many doctors who are still in the habit of declaring to their patients that their hearts are weak and so restrict their movements and prescribe some so-called heart tonics without, in the least, investigating their psychogenic symptoms which, on account of fear and the treatment, become permanent. Another common irresponsible statement made to patients who come for some chronic dyspeptic troubles is that their liver function is bad and they are made to swallow bottles of so-called liver tonics without any improvement,—as they have been really suffering from chronic appendicitis, cholecystitis, peptic ulcer or tubercular enteritis. These conditions are never investigated into and adequately treated. As a matter of fact, we are no longer living in the days when we had to try something and hope for the best,—but now the knowledge and with it the responsibility of a doctor has increased and there is no excuse for giving ignorant and irresponsible advice. Take for example, a child suffering from meningitis 15 years back. There was practically no specific medicine and so the responsibility for an exact diagnosis was not urgent;—the ordinary fever mixture with a little calcium powder could have been continued till the end. But now the position is quite different;—if we cannot exactly diagnose the condition at the onset of the disease and decide whether Dagenan sodium or penicillin or streptomycin should be the specific drug of choice,—the responsibility would be almost criminal. Then, there is the opposite type of irresponsibility of rushing in for a diagnosis without availing of the diagnostic methods and prescribing a valuable medicine like aureomycin, chloromycetin or streptomycin,—both wasting the medicine and the patient's money. I know of a doctor who risked the diagnosis of typhoid fever on the 4th day of the fever without any laboratory investigation and prescribed chloromycetin which had no response on the fever which was ultimately controlled by quinine but not before the costly drug and the poor patient's money were wasted. Indeed, I am afraid of the day when a mixture of penicillin, chloromycetin and aureomycin like sulphatriad will be prescribed by doctors without the necessity of a clear diagnosis. Another common irresponsible treatment is the treatment of anæmia with liver injections without attempting to diagnose the cause of the anæmia or whether the anæmia is of the iron-deficiency or Addisonian type, with the result that either the patient does not improve or, if improved, frequently relapses till the exact diagnosis is made when it may be found to the dismay of the doctor that the patient had been suffering from carcinoma of the bowel or stomach which has quietly advanced during the liver treatment.

I have seen doctors possessing a dispensary show apparent sympathy and generosity not to take fees from poor patients but to compensate for it by charging many times the price of medicines issued from their dispensaries. Many of these doctors are ultimately found out and their practice is ruined for ever. I have seen many doctors applying obstetric forceps in cases of normal labour by taking advantage of the patient and the party's anxiety, specially in a primigravida where the labour is normally a little delayed. These are some of the disservices we render to our patients frequently out of a mere mercenary motive.

Although it is an established ethical law that whenever examination or treatment is beyond the capacity of a doctor, he should summon another who has the necessary ability,—we are frequently tempted to blindly grope in the dark where we should not, on a mere sense of false prestige before the patients, and sometimes with the idea of not allowing the patient to go into the hands of another practitioner, however specialised he may be, I can cite an example of a patient profusely bleeding from an inevitable abortion who was being treated with calcium, kapilin, lutocyclin and what not, till she was sent to the hospital in a very low condition when an examination was done, the diagnosis made and the uterus was evacuated at a great risk to her life. 'Malpraxis' is defined to be the want of reasonable skill and care on the part of the medical attendant, whereby the person under treatment sustains damage to health or life or limb. In our country,—on account of illiteracy and natural good-heartedness of the people, we escape the consequences of law in many cases where, in other countries, a suit for compensation could have been easily lodged against us. Thus, the common picture of cicatrix and contracture of limbs after burns treated by a doctor, is an unpardonable offence of malpraxis which is easily accepted by the patients of our country without grumble as their lot. Next, is another important topic which I like to touch a little before I close,—that is the relation between a doctor and a doctor. To my mind,—this relation is getting bitter everyday by the frequent self-advertisement and propaganda against one another which are the worst challenge to all ethics and are ruining the reputation of our noble profession. A doctor ought to behave to his colleagues as he would have them behave towards him,—is a golden maxim frequently forgotten by us. I know of a well-qualified and reputed doctor of a town who was frequently called into distant villages for consultation. Whenever the prescription of the local doctor was presented to him at the bed-side of the patient,—he used to glance at it for a moment and the next moment he would tear it into pieces with great indignation, frankly indicating that the prescription was not only wrong but dangerous to the patient.

In fact, by our words and actions, we ourselves are digging our own graves. People are becoming intelligent

everyday and they can at once find out our weakness and defects and ignore our profession on account of our own irresponsible acts and words. Any intelligent layman to-day knows many of our modern remedies and their indications and every doctor knows the difficulty of treat a patent in an educated and intelligent family where the doctor is literally faced with a cross-examination with regard to his diagnosis and prescriptions. It is no more wise to censure these educated people because they want to peep into our diagnostic abilities and methods of treatment;—but it is time that we should not ignore them and let them know, as far as practicable, the how and why of our science, to convince them and to have their confidence in us.

I am etc.

SUSIL KUMAR BHATTACHARYA, M.B.B.S.,
Asst. Surgeon, Darjeeling.

THE LICENTIATES AND THE DIPLOMA ON PUBLIC HEALTH AND INDUSTRIAL HYGIENE

Sir—There is a diploma training course for graduates and licentiates in Medicine in Public Health and at the All-India Institute of Hygiene and Public Health, Calcutta. Both the graduates and licentiates have to undergo the same training under the same professors. But the final examinations for the licentiates are conducted by the Faculty of Tropical Medicine and Hygiene, and licentiates got the diploma D.P.H. and Hy. upto 1949-50, but from 1950-51 they are getting L.P.H. diploma instead, for reasons best known to the authority. The examinations for graduates on the other hand are conducted by the Calcutta University and they are getting the D.P.H. diploma. This differential treatment is inexplicable. Recently a diploma course in Industrial Hygiene has been started by the Calcutta University in the All-India Institute of Hygiene and Public Health, and the licentiates have been shut out from it.

So may I request you to negotiate with the Calcutta University for the benefit of licentiates in this matter, I am etc.

Gopalgunj, Saran, 28-11-51.

S. K. SAMONTA,
Assistant Health Officer,

CHLOROMYCETIN IN TYPHOID

Sir,—It is now more than two years that most of us have been using chloromycetin in cases of enteric fever. It has been observed that given sufficiently early, chloromycetin in most cases cuts short the disease in a remarkable way. But unfortunately relapses are fairly common—more so in cases, where the drug could not be continued for sufficiently long period even after the temperature has come down to normal and other symptoms subsided. These relapses have become the bug bear of the general medical practitioners more so because the average patients could not be induced to continue chloromycetin for a sufficiently long time for financial reasons. In some cases relapses have occurred even after continuing the drug for a reasonable period after temperature has come down.

In a case of enteric fever not treated with chloromycetin, when cured, the body acquires some immunity. It may be presumed that exhibition of chloromycetin in some way or other interferes with that normal immunological process—hence the frequency of relapses. This also may to some extent explain the gallbladder infection and other complications sometimes one gets in chloromycetin—treated enteric cases. If this presumption is correct, can introduction of artificial immunotherapy in the shape of T.A.B. vaccine, be of any help in checking relapses if given in a case of enteric fever when the temperature has come down to normal after exhibition of chloromycetin? Opinion of my learned colleagues about it will be welcome and helpful. I am etc.

B. GHOSE, M.B. (CAPT.)

Barganda, Giridih, Bihar, 20-10-51.

REVIEWS

MUIR'S TEXT BOOK OF PATHOLOGY—Revised by D. F. Cappell, M.D., F.R.F.P.S.G. Published by Edward Arnold & Co., 41 Maddox Street, London W 1. Local Agents—Orient Longmans Ltd., 17 Chittaranjan Avenue, Calcutta 13. Revised 6th edition, 1951, pp. 1090, Price 50s. net.

This, the sixth edition, of Sir Robert Muir's Text Book of Pathology, has been revised by a well-known teacher of repute. Professor Cappell of the Glasgow University has spared no pains in keeping up, and improving at places, on the standard of the book so long maintained by the preceding author. Muir's text book has acquired a respected position as a reliable book for students undergraduate and post-graduate—wherein the subject of Pathology has been presented in a regular and comprehensive way. This reputation has been well maintained in this present revised edition. A total of 636 figures some of naked eye morbid anatomy, but mostly of microscopic appearances, has been used in illustrating the text for better appreciation by the student. Comparatively less important material has been printed in smaller type for differentiation. An assortment of Bibliography at the end serves to stimulate the more inquisitive reader in looking up for more informative literature. Get up, binding, paper and printing, specially of so many photomicrographs, are very good.

R. S.

THE RATIONAL TREATMENT OF CATARRH—By Dr. W. Annandale Troup M.C., M.D., CH.B. (ST AND.). Published by Chaterson Ltd., 5 Johnson's Court, Fleet Street, London E. C. 4. Pp. 85, Published October 1951, Price Sh. 10/6 net.

This is a very interesting book in which the author, with his experience of over a quarter of a century of work with the Kromayer Lamp and other useful methods of physiotherapy, has made impassioned appeal supported by careful and balanced reasoning, for more and extensive use of physiotherapy for various common and chronic ailments specially chronic nasal catarrh. The author has set forth strong arguments favouring the use of physiotherapy for chronic catarrh and nasal sinusitis—in preference to the more conventional practices of instillations, washings and operations, often repeated—not as a new method only for trial, but as a well-tried procedure for more extensive adoption by the medical profession. The author describes the various models of different apparatuses used for the methodical treatment, followed by procedures of treatment and then by notes of many of his own interesting cases. The author has attempted to place physiotherapy, for chronic nasal catarrh, in its rightful place amongst the therapeutic aids available to the medical profession of to-day; and the book deserves to be read by all medical men, general practitioners or specialists, who have to deal frequently with such patients of chronic nasal catarrh.

R. S.

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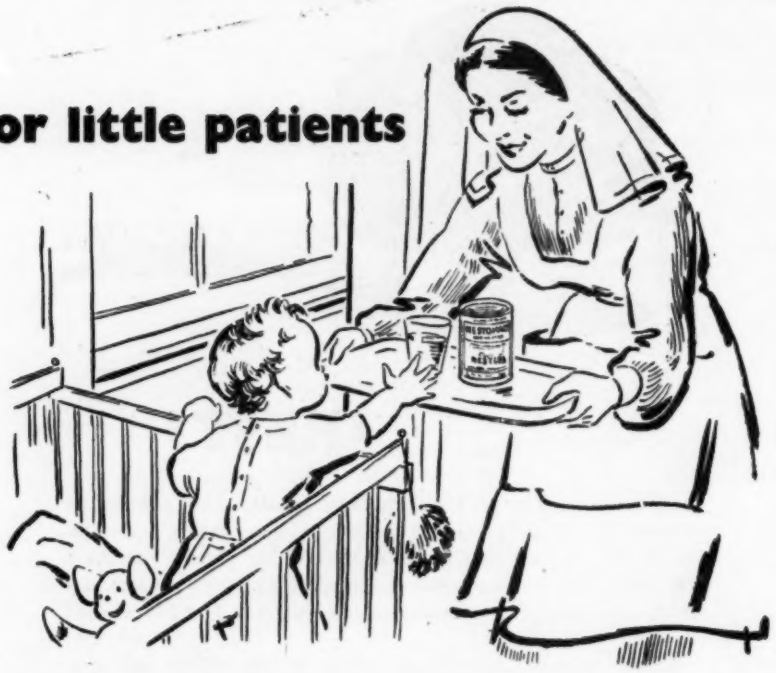

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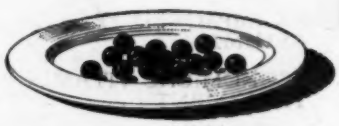

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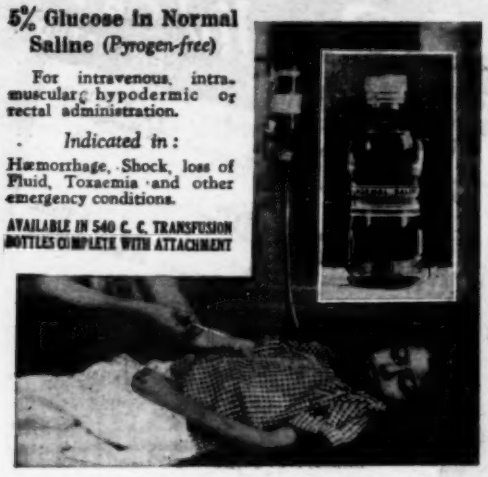

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1. Krasno, L. R., Grossman, M., and Ivy, A. C. (1948), The Inhalation of Norisodrine Sulfate Dust, Science, 108:476, Oct. 29.

2. Krasno, L. R., Grossman, M. I., and Ivy, A. C. (1949), The Inhalation of 1-(3',4'-Dihydroxyphenyl)-2-Isopropylaminoethanol (Norisodrine Sulfate Dust), J. Allergy, 20:111, March.

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